ISASC®

EQUILIBRIUM®

QUARTERLY MAGAZINE OF THE INTERNATIONAL SOCIETY OF ANTIQUE SCALE COLLECTORS

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Cover Picture

This small postal bismar is made of cast iron and steel. It measures 5½ inches high by 10" long and has a non-magnetic letter plate measuring 4" by $3^{5}/_{8}$". The chart on front is graduated 0 to 9 while the beam is graduated from 0 grams to 1 Kilogram by 10 grams. The tripod base is painted in rich hunter green with gold pin stripes and has a leveling screw at one corner.

The editor is interested in any information a reader may have as to its place of origin.

Berning Collection.

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Article submissions are preferred in MS Word with Times New Roman Font size 12.
Photos are best in 300 DPI Jpegs in a separate file with a maximum of 3 photos per Email.

Who made these Ball & Rod Postal Scales? Part 2

BY DIANA CRAWFORTH-HITCHINS

I will prove that it was Messenger & Sons, but, to keep the historical evidence in sequence, you will have to wait a little while for the evidence.

Birmingham was a hot-bed of foundries making an amazing range of metal goods, in the late 18th to early 19th centuries, and a few major manufacturers stood out for their superior products. You might know them, because you have scales made by them, Winfield, Ratcliff, S & P (Simcox & Pemberton), STS (Samuel Turner Senior) and Townshend, but you won't know the name Messenger & Sons, because they didn't put their name on their unusual postal scales. This seems so odd, given the high quality of their work, that we must suppose that each scale came in a nice but disposable box with their name prominently displayed.

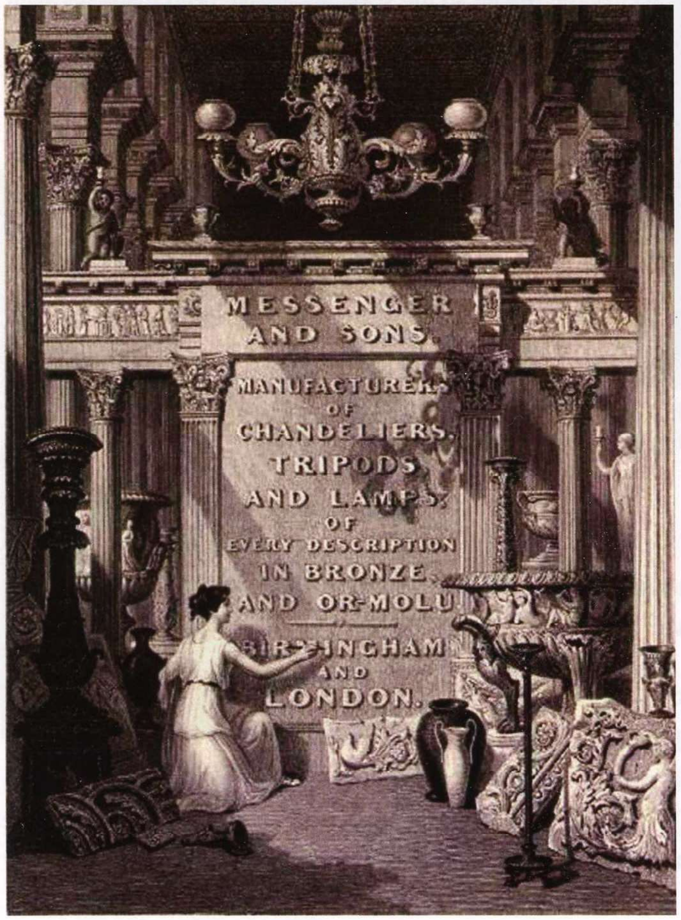

MESSENGER
AND SONS.
MANUFACTURERS
OF
CHANDELIERS,
TRIPODS
AND LAMPS,
OF
EVERY DESCRIPTION
IN BRONZE
AND OR-MOLU
BIRMINGHAM
AND
LONDON.

Figure 16. ⮝⮝ This advertisement was published in 1836 and again in 1858, showing some of the larger items that Messengers were so proud of. On the left is a huge pillar of the type that they used for decorating public buildings and fountains. At the top is one of their plainer smaller chandeliers. I guess the artist refused to draw one of their incredibly complicated chandeliers covered in sphinxes, eagles and flourishing foliage. Whenever they advertised, Messengers always emphasised that they worked in bronze and ormolu.

Thomas Messenger (probably born 1761) worked with Phipson from about 1797, with their mark "M&P". They advertised that they made plated metal goods & Church candlesticks, but very elaborate table candelabra by them are known, decorated with magnificent eagles. By 1823, Messenger had separated from Phipson and set up with his son, Samuel (born about 1783) in Alston St, Birmingham, then moving to Broad Street to be next to the canal that brought in heavy materials & took away their heavy brass lamps, artistic chandeliers, gas fittings, railway lamps and iron candelabrum. Messengers kept the retail shop at 29 Greville St, London that he had set up with Phipson in Hatton Garden (the Jewellery Quarter of London) to tempt wealthy customers.

In 1854, Messengers had their premises in Birmingham remodelled, and curiously they were documented then as "brass & iron bedstead manufacturers". Using iron made sense for bedsteads, but almost every other reference to them refers to their being brass & ormolu makers of lighting in all its variations, ships lamps, chandeliers, branches, carriage lamps, railway lamps, street lamps, hall lamps, candelabra, candlesticks, etc. When the lighting needed to be particularly strong, Messengers used iron but plated it in bronze. If only the adverts and trade directories were consulted, people would be greatly mislead. Turning up on ebay and other sites are spill holders (two girls dancing to the tune of a horn player seated beneath a tree), watch holders, inkstands, table sculptures, ornamental fittings for large public works, balustrades for staircases, "Roman" vases, match holders, and, of course, postal scales.

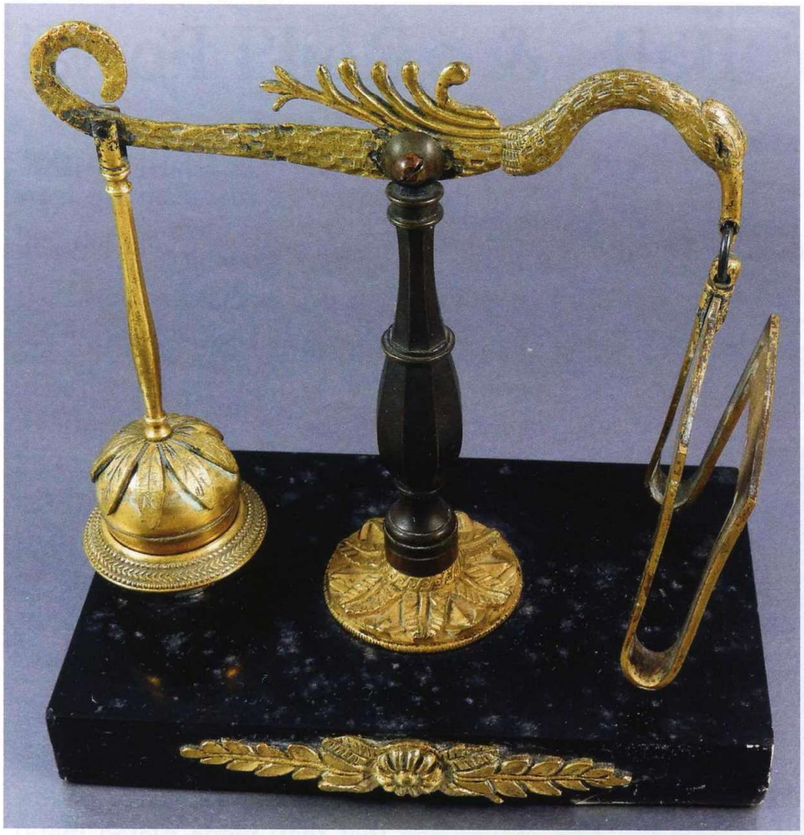


Figure 17a. ≺≺ This magnificent fantasy of a dragon holding a scale was probably commissioned by one of the people who attempted to keep Weeks's Royal Mechanical Museum running after the death of Thomas Weeks in 1834. The Museum specialised in amazing automata, and had a shop where things like this elegant postal scale could be bought.

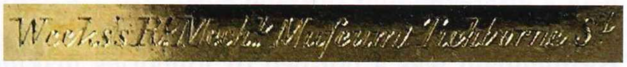
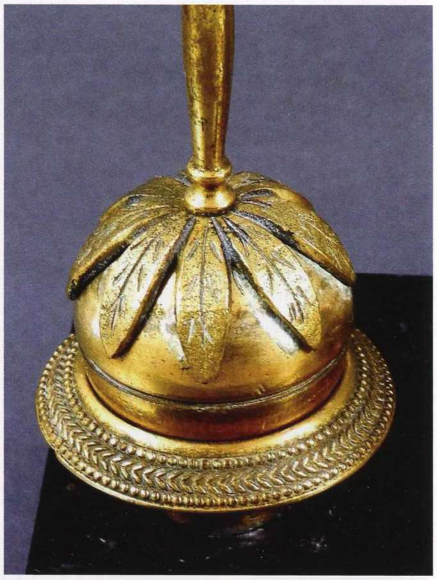


Figure 17b. ⋏⋏ The Museum moved to 202 Piccadilly in 1844, but the letter hanger bears the address in Tichborne Street, so the scale must have been made between 1840 and 1844.

Figure 17c. ➢➢ Most cups were plain, or lightly decorated, but for this version Messengers made the rim very ornamental, and engraved the leaves on the ball.



The company was run by at least three generations of Messengers, Thomas (who died in 1833), Samuel I (married to Susannah) and Samuel II (born 1809) who did not marry, and died a multimillionaire (worth in today's money about £27 million or $38 million). After the death of the last male Messenger, the company was run by Albert Charles Jones and Samuel Jones.

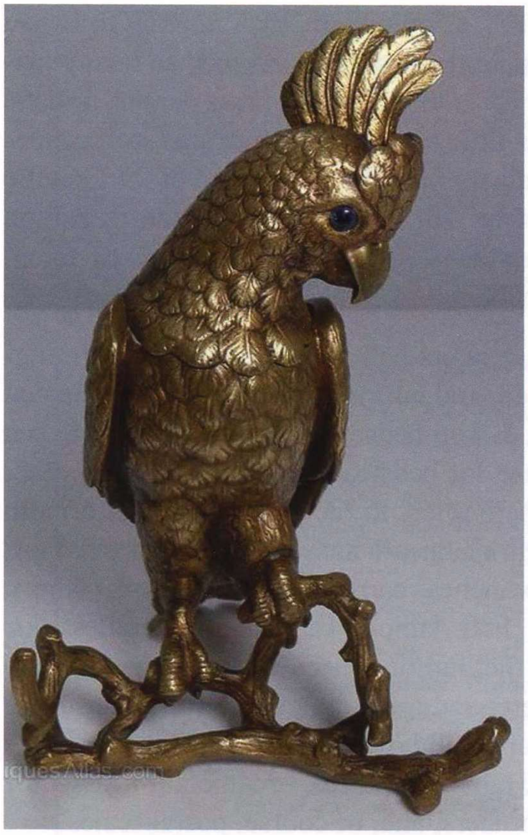
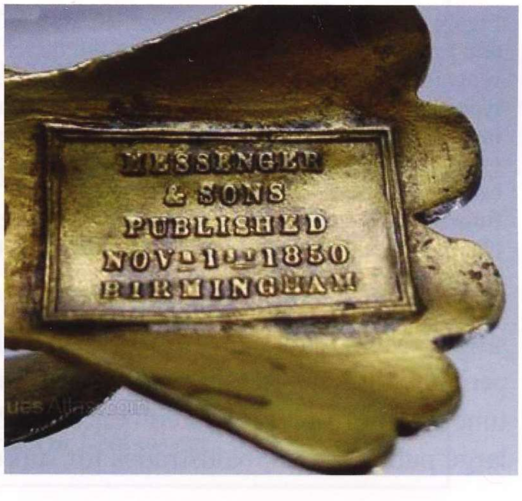


Figure 18a. ≺≺ This inkwell was the first named piece that I found. The enthusiasm for cockatoos and macaws is evident on several of their scales and watch-holders.

Figure 18b. ➢➢ This plaque is cast onto the underside of the cockatoo's tail. It seems extraordinary that Messengers did not use a similar plaque on any of their scales.



In 1861, they employed 35 men, 10 women and 51 boys, totalling 96 people. By 1881, they employed 160 people, possibly due to the increased demand for gas lighting and fitting, Messengers being at the forefront of that trade.

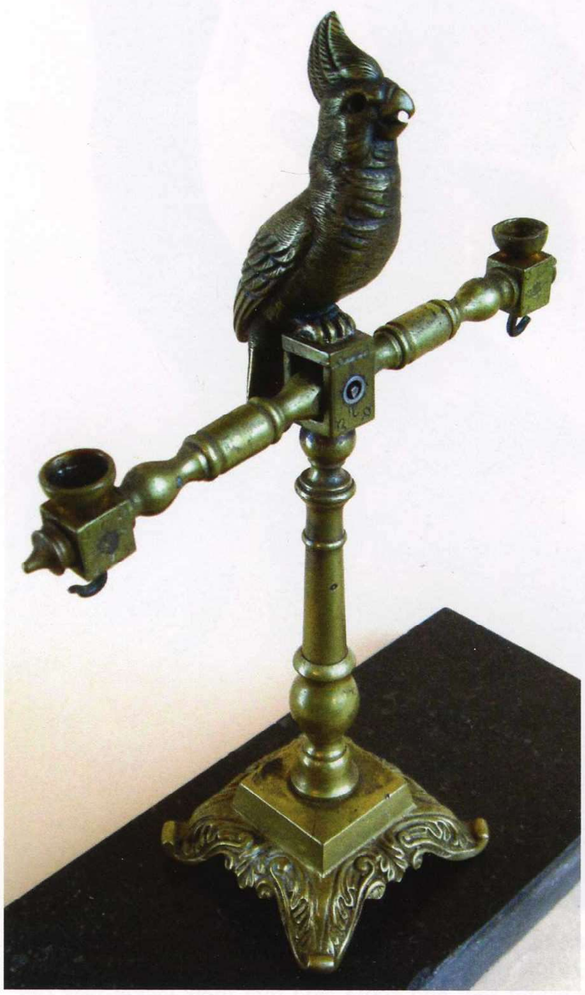


Figure 19. ⮝⮝ This scale, with the cockatoo with his two little seed cups, has lost its ball and rod and its letter hanger, but it shows characteristics of Messenger's work. The box for the fulcrum and the open hooks on the ends are classic Messenger features. The base is a replacement, having no hole where the cup would be fixed.

Messengers didn't advertise much, as many of their more luxurious artistic items were commissioned. Some of their customers, Queen Victoria, the 4th Duke of Newcastle, Liverpool Corporation, the Fitzwilliam Museum in Cambridge, and Birmingham Market, are known. They protected their products by being enthusiastic users of the Registered Design system that gave four year's protection for each artistic design. They had over 300 protected designs between 1839 and 1880, just relating to gas lamps, gas candelabra, gas supports, and gas girandoles. The only protection relating to scales was taken out by H B Wright of Upper Marylebone St, London, for his kneeling boy, (Figures 1 & 2) in 2018, issue 4. Presumably he sold the rights to Messengers, and missed out on a profitable future.

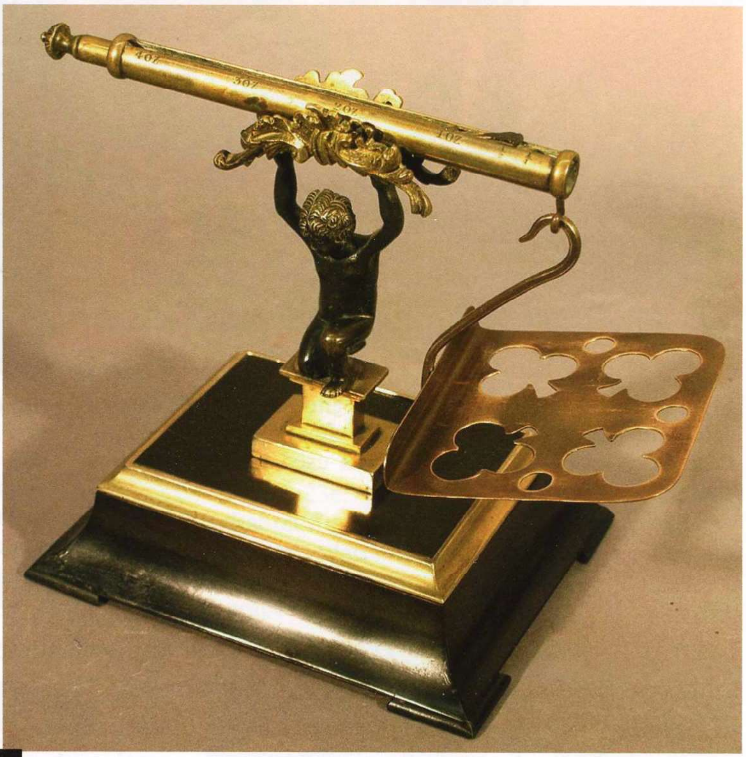
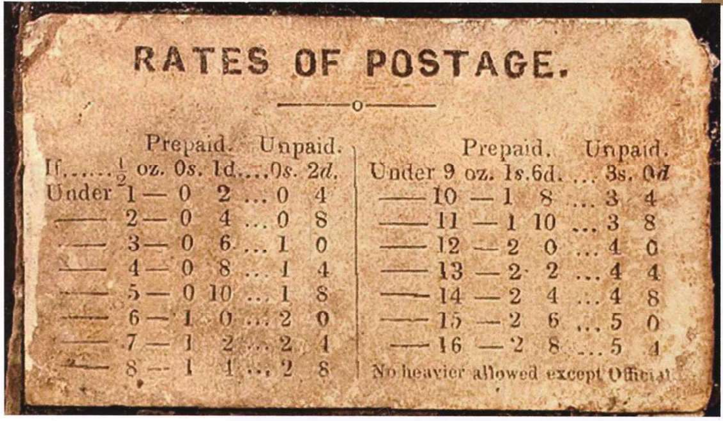


Figure 20a. ⮝⮝ The kneeling boy came in various designs, this example being particularly fine. Comparing Figure 1 with this one, the bases are completely different, and the letter plate also is different. Messenger was still using the open hook beam end, so it is a wonder that the letter plate has remained with the scale.



RATES OF POSTAGE.

Prepaid. Unpaid.
If.....½ oz. 0s. 1d....0s. 2d.
Under 1 — 0 2 ... 0 4
—— 2 — 0 4 ... 0 8
—— 3 — 0 6 ... 1 0
—— 4 — 0 8 ... 1 4
—— 5 — 0 10 ... 1 8
—— 6 — 1 0 ... 2 0
—— 7 — 1 2 ... 2 4
—— 8 — 1 4 ... 2 8

Prepaid. Unpaid.
Under 9 oz. 1s.6d. ... 3s. 0d
—— 10 — 1 8 ... 3 4
—— 11 — 1 10 ... 3 8
—— 12 — 2 0 ... 4 0
—— 13 — 2 2 ... 4 4
—— 14 — 2 4 ... 4 8
—— 15 — 2 6 ... 5 0
—— 16 — 2 8 ... 5 4
No heavier allowed except Official

Figure 20b. ⮜⮜ The underside of the boy scale has the Rates of Postage for 1839-1861. It bears the unusual disclaimer "No heavier allowed unless Official". That would be aimed at most people, unless they could get a Member of Parliament to endorse their package for them, as MPs were exempt from such petty restrictions and did not have to pay for their outgoing post!

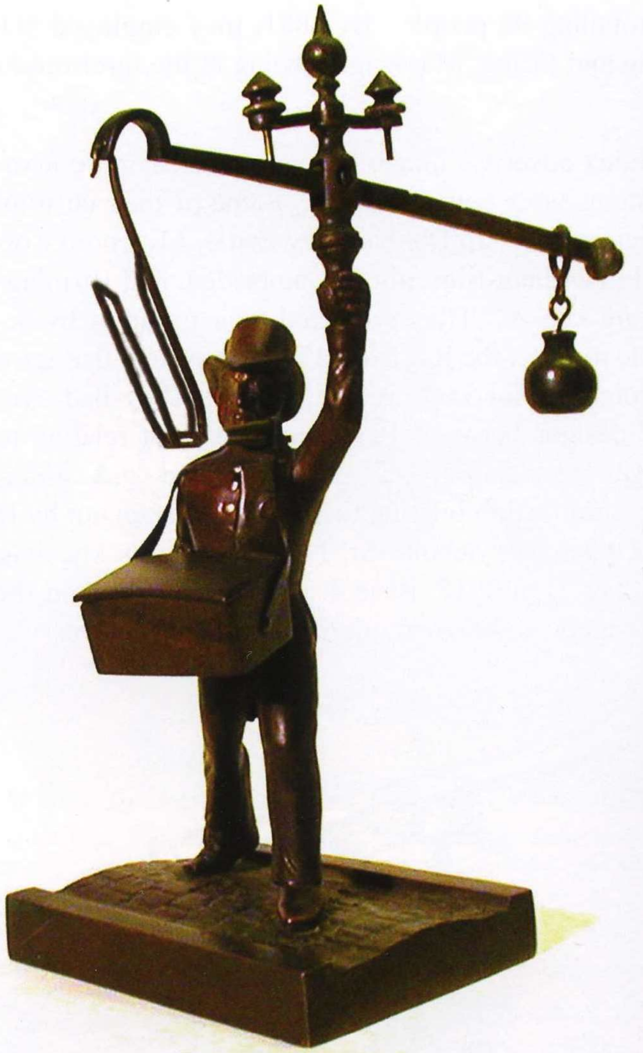


Figure 21a. ▲▲ This is probably another early design, to celebrate the introduction of the cheap, effective Penny Post. The letter box opens, so was used to store the new stamps, the Penny Black.

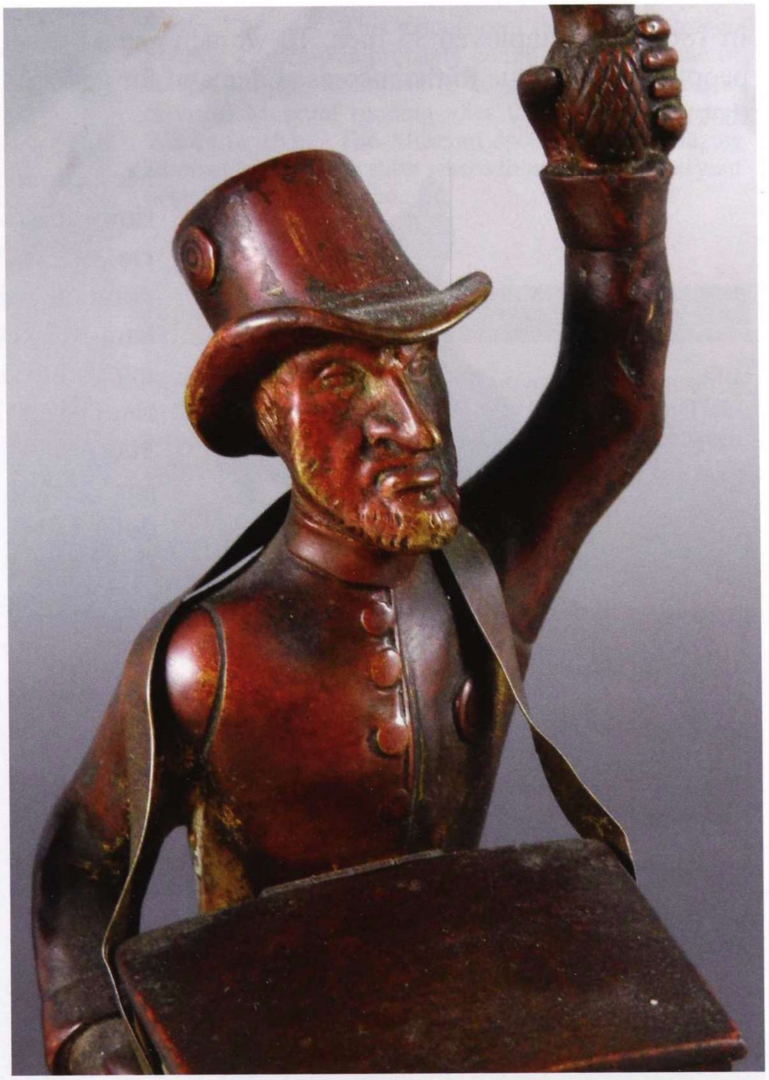


Figure 21b. ▲▲ The postman wears the earliest uniform with the two badges of Office, one on his hat and one on his chest. His cuffs and collar were bright red, and some said that their jacket was red, hence the nickname of postmen, Robin Redbreast. Note the similarity between this design and that of Figure 14, suggesting that the same artist designed both.

Even though the Messengers mainly made commissioned art works, they did see the advantage of showing their best new work at the Great Exhibition of 1851, contributing "*an extensive variety of useful and ornamental productions in iron and bronze, etc, distinguished by elegance and correctness of design, and excellent workmanship*". In their bronze & ormolu section they included several pieces that will remind you of their scales.; "*a letter balance of an ornamental group of people, an inkstand with a group of a bull, cow & calf, an inkstand of a group of goats, an ornamental match-holder with gipsy figures, a candlestick with a climbing boy, an inkwell with a stag and a letter balance with Justice*".

At last, we had the clue as to who made the ball and rod scales. " *a letter balance with Justice*". No other maker was making postal scales with figures, and we had found this scale with Justice, blindfolded, with her sword, supporting her scales of Justice. And, to add to our confidence in attributing all these scales to Messengers, she had a parrot poise. Messengers loved parrots!

In 1858, they gave, as a wedding present to the Princess Royal (eldest daughter of Queen Victoria), a bronze sculpture of her Majesty Queen Victoria with the Prince of Wales, widely described in the newspapers. It was sculpted by John Bell, one of several top sculptors who made designs for them.[1]

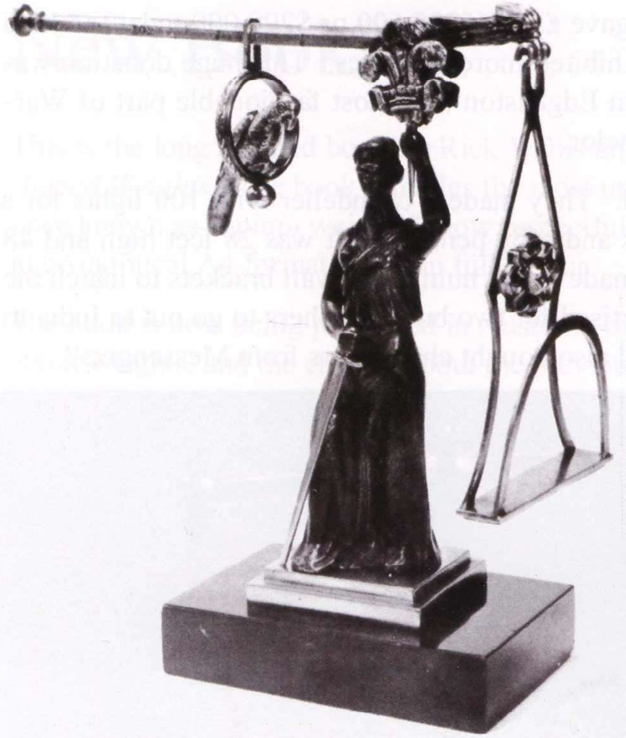


Figure 22. ▲▲ I apologise for the poor image of this important scale. The parrot on the poise is clear, but the right end of the steelyard being a parrot's head holding the letter hanger in his beak is less easy to see. As this scale was made for the Great Exhibition in 1851, the addition of the Prince of Wales feathers being held aloft by Justice was probably intended to show Messenger's patriotism. The spacer of the letter hanger has so far not been seen on any other scale.

Figure 23b. ▼▼ The faun's hair is covered in vine leaves. The ormulu has rubbed off his nose, showing the bronze underneath.

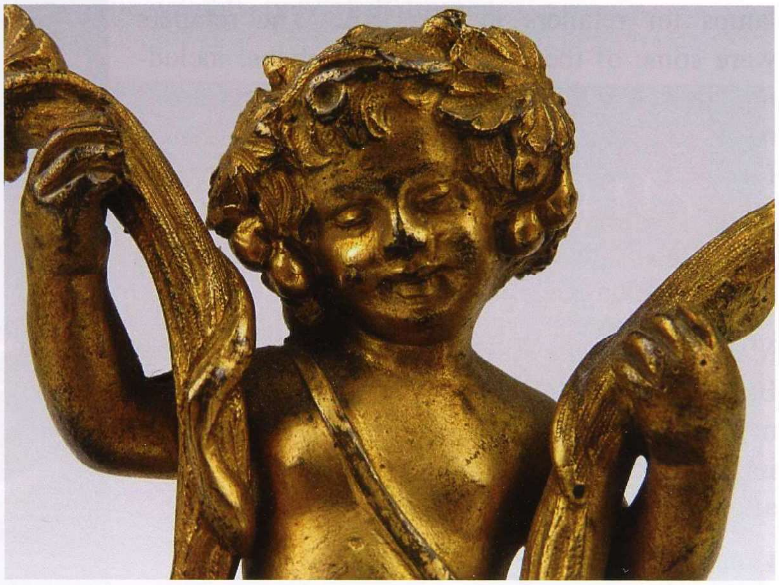


Figure 23a. ▼▼ This scale looks very much like the one in Figure 3, but this child is a faun with goats' feet, not a human. It is dated 1856.

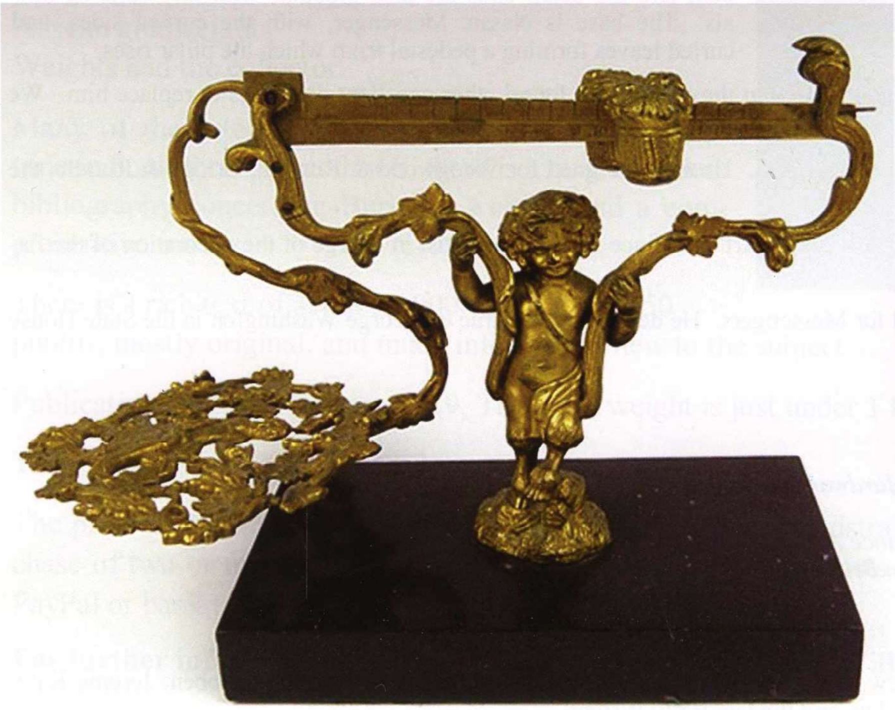
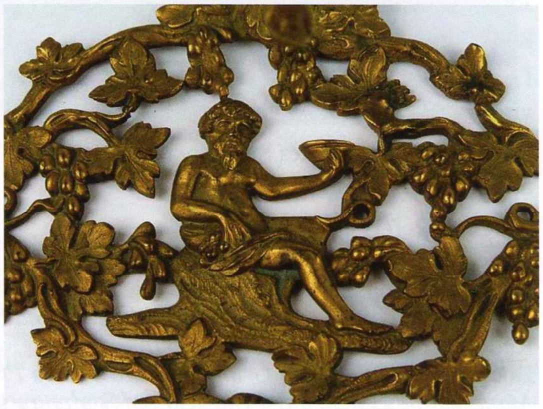


Figure 23c. ▼▼ The letter plate (the same as that on Figure 3) is the most elaborate of Messenger's plates. Bacchus sits relaxing, holding up his cup of wine, surrounded by bunches of grapes.



The 1851 exhibition had been so successful that Messengers gave £500 (£205,600 or $290,000 today) to help to prepare the second great Exhibition of 1862, where they exhibited more novelties. This huge donation was appropriate for a brass founder living in a very smart house in Edgbaston (the most fashionable part of Warwickshire), with three live-in servants to look after him, a bachelor.

Messengers had an export department that spanned the world. They made a chandelier with 100 lights for a Pasha in India, made of ormolu with clusters of clear crystals and ruby pendants. It was 28 feet high and 48 feet in circumference and weighed nearly a ton. Messengers made a vast number of wall brackets to match the chandelier, to go in the same room. Ten years later they advertised for two brass finishers to go out to India to finish and repair their chandeliers. How many Maharajahs had also bought chandeliers from Messengers?

They also made particularly handsome table lamps for retailers in the USA. The retailers were some of the most important shops, including Hayden & Gregg in Charleston, South Carolina, (1832–46), Alfred Welles in Boston, Jones, Lowes & Ball in Boston, J. & I. Cox in New York, Baldwin Gardiner in New York, Louis Veron in Philadelphia and their counterparts in Baltimore and Richmond.

Messengers were still founding in Broad Street Birmingham in 1933, working in bronze and ormolu, but the Depression affected people's buying of ornamental lamps and Messengers closed after 136 years of giving pleasure.

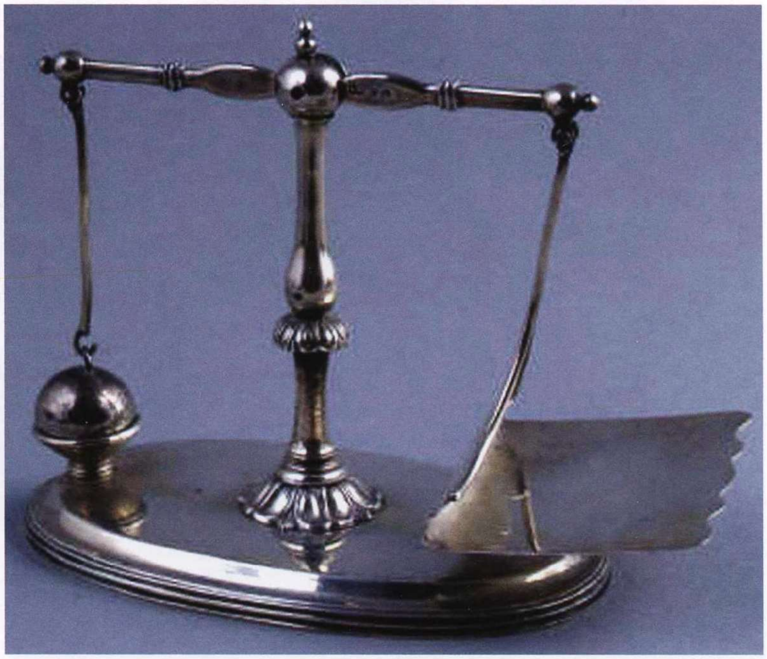


Figure 24. ▲▲ This scale was made of silver in 1864, by a silversmith, to the design of Messengers. Unusually, the ball is made separately from the rod. The fulcrum is covered by a ball, not by a box, and the beam ends are also globular with tiny balls as finials. The base is classic Messenger, with the curved sides, and curled leaves forming a pedestal from which the pillar rises.

Endnotes:

1. John Bell designed some of Coalbrookdale's most renowned pieces, including their greyhounds that are now in the Coalbrookdale Museum and the huge sculpture of Sir Robert Peel, who started the Police Force. Bell also designed the sculpture of Andromeda, bought by Queen Victoria.

Messengers first sculptor, William Lines, had died in 1846, but they obviously found other excellent designers to replace him. We have not identified which designs he did.

John Flaxman is reputed to have done designs for Messengers. He also designed for Wedgwood & Rundell, Bridge & Rundle, the goldsmiths for the Royal family.

Ludwig Gruner worked for Messengers. He was "Adviser in Art" to Prince Albert, and artist in charge of the decoration of the Pavilion at Buckingham Palace.

Francis Chantrey, (later Sir Francis) also designed for Messengers. He designed the statue of George Washington in the State House at Boston, Mass.

Notes & References:

Ancestry.co.uk
Various Birmingham Trade Directories
Timmins, S, editor, *Birmingham & the Midland Hardware District*
Rutherford, J, *Country House Lighting*
Boeckmann, D, *Ludwig Gruner, Art Adviser to Prince Albert*
Mapping the Practice & Profession of Sculpture in Britain & Ireland 1851-1951
Barnes, J, *John Bell The Sculptor's Life & Works*

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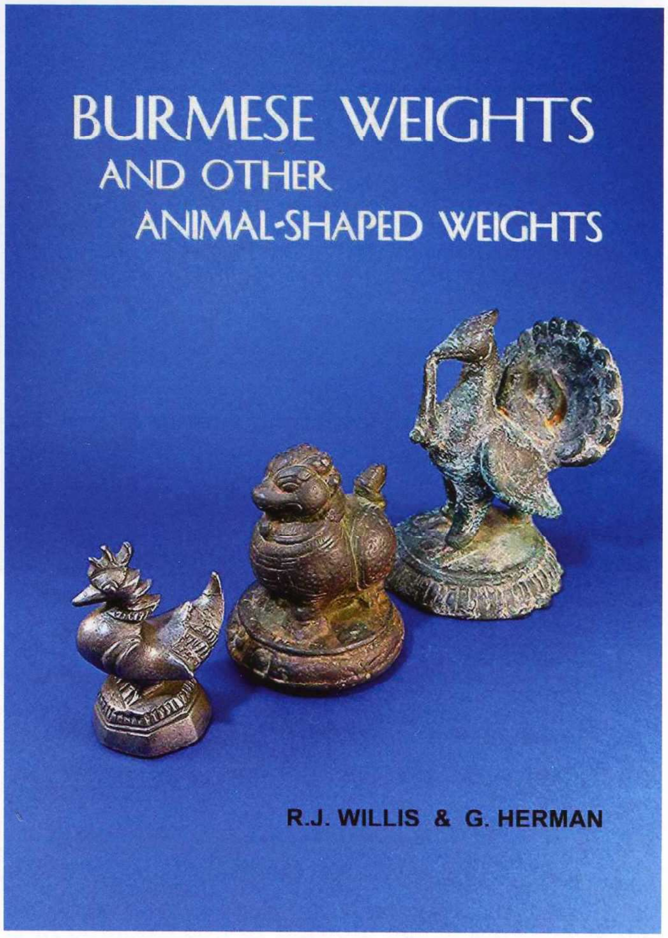
New Book

This is the long awaited book by Rick Willis and Greg Herman entitled *Burmese Weights and Other Animal-shaped Weights*. The book provides the most up-to-date and comprehensive coverage of the topic of weights, once known as "opium weights", now respectfully known as Burmese Weights. The book has been published in economical A4 format and is in full colour.

The book is now being published in Australia by Hintha Books. There is a wealth of totally new information about weights, and the chapter about the previously unknown weights of Bagan and Ava is remarkable in presenting for the first time the incredible story of the discovery of the treasure of the 16th Century Ava king, Moe Bye Narapati, which at its centre held a hoard of unique weights, previously unseen.



Another departure from the usual books about Burmese and similar weights is that the book describes the weights most often seen in the marketplace, including copies and fakes, and not just those confined to museums.

The book comprises 262 pages, and covers the following topics:
Historical background
Manufacture and use of Burmese weights
Origins of zoomorphic weights
Weights of the Bagan and Ava eras
Burmese bird-shaped weights
Burmese lion-like weights (i.e. toe and chinthe)
Elephant weights
Amulet-like weights
Weights of Laos
Weights of India
African goldweights
Weights and the collector

Many of these topics have been tackled for the first time in book form. In addition, there is a near complete bibliography concerning Burmese weights and a comprehensive index.

There is a rich text of about 74,000 words, over 450 photos, mostly original, and much information new to the subject.

Publication started in January 2019, The book weight is just under 1 kg.

The ISBN is 978-0-646-99662-2

The price is A$55 or US$39. Postage will be extra. Within Australia postage should be about A$11. Purchase of two or more copies will significantly reduce postage costs per copy. Payment can be accepted via PayPal or bank transfer.

For further information and orders, please contact: Dr Rick Willis at: allelopathy8@gmail.com

Stay Just A Little Bit Longer (Or A Little Bit Shorter)

BY JOHN KNIGHTS

In 2018 I received a communication from a gentleman in the Netherlands, who wanted to tell me about a scale that he was using in his windmill and seek some technical information about it. The windmill is near Arnhem in the East of the country and is a heritage site that grinds flour in the traditional way.

I was rather surprised when I received the photographs of his scale as it was readily identifiable as a low pattern Avery deadweight machine, commonly known as a sack scale (Fig 1). It is called a low pattern machine because the plates are located near the floor so that heavy sacks can be easily lifted onto the goods plate.

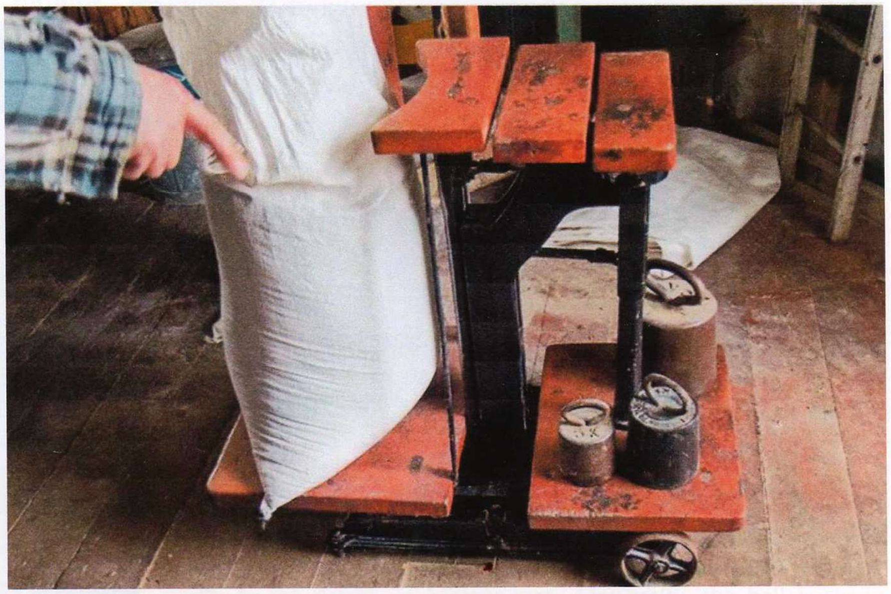


Fig. 1. ▲▲

I had always regarded this pattern of scale as a uniquely British machine and was actually unaware that it was marketed on the continent. According to my Dutch friend, however, this type of scale was quite well known in The Netherlands, had been very well regarded over the years and was preferred to the continental decimal machine or 'bascule'.

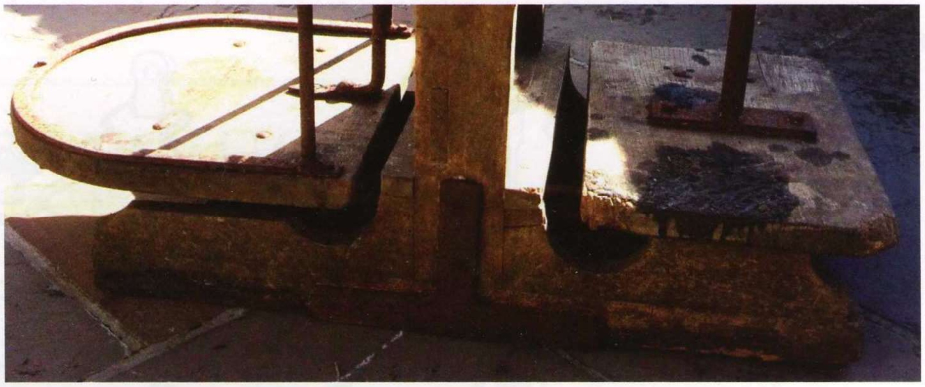
This disabused me of a lifetime's misunderstanding, but also left me with a query. The one aspect of the Avery sack scale that made it uniquely British was the fact that it was built on the accelerating principle. This meant that the beam of the scale did not actually balance when it reached equilibrium, but because the centre of gravity was located above the fulcrum, 'tipped over' from a back stop to a lower front one. The operator had to judge the rate of descent as being that appropriate to correct weight.

The reason for this construction is a little unclear, but at one time, in the UK, several classes of instrument were built in this way. Accelerating counter machines and steelyards disappeared at the end of the 19th century, but the larger capacity deadweight persisted and is still recognised in modern legislation. The machines themselves have, of course, been supplanted by electronics. After the UK has finalised its chaotic exit from the European Union, I suspect the remaining states will breathe a sigh of relief and discard this aberration from their system.

The major UK manufacturers produced this type of scale operating on the accelerating principle, but some local makers produced similar looking machines that were more conventional in that the beams were in stable equilibrium and balanced. These were known as vibrating machines as the beam oscillated when perfectly balanced. For testing purposes it was necessary to identify which type of scale was being presented as they superficially looked very similar. The beam of the accelerating machine, however, stood horizontal before the load was applied with the weights plate sitting on a raised backstop. When the weighing was

Complete, the beam was tilted with the goods plate resting on a lower front stop (Fig. 2). In the case of the 'vibrator' (that's what they were called' in the 'good old days' without the remotest thought that there could be another meaning), the front and back stops were of equal height and a perfectly balanced beam would oscillate between the two (Fig. 3).

Fig. 2. ➢➢



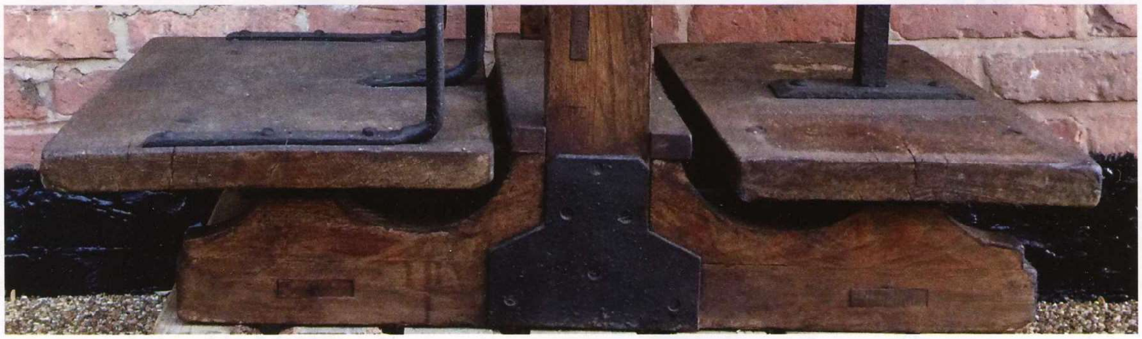


Fig. 3. ≺≺

The other difference between the two patterns was the design of the stay!

The deadweight machine is constructed, like many other scales, on the Roberval principle and the stay of a Roberval machine is a thing of beauty (if you like that sort of thing). It is, when properly constructed, a component that performs its duty in an elegant and satisfying manner. The essential requirement of a stay is that it retains the same effective length whether it is in a state of tension or compression. Both conditions occur in the use of a Roberval scale, depending on where the loads are placed on the plates. It is normally equality of lengths in the vertical components, legs and centres, that is considered the most vital feature, but stay length is also important. Any difference between length of the stay, or stays and the beam becomes significant when the beam moves away from the horizontal. Equality of length of the horizontal components ensures that the essential parallelogram form remains intact.

The stay often used on Roberval machines retains its constant length by having a double set of knife edges on the stay and appropriate co-planar bearing plates on the vertical legs (Fig. 4). Which sets of knife edges and bearing plates operate depends on whether the stay is in compression or tension, but in either case the effective length remains the same. This was the most widely used component in low capacity machines and achieved good weighing outcomes. It was apparently not good enough however, for the Teutonic citizens of Westphalia who insisted upon an alternative format (Fig 5). Instead of having a single stay, this machine incorporates a two-stay arrangement. The design is theoretically superior to the normal Roberval stay in that the locating knife edges are on the legs and centres of the scale, thus ensuring the all-important lengths of the vertical components always remain constant. A quirky feature of this machine however, is a small difference in the length of the compression part of the stays and the tension parts. The former is slightly longer than the beam and the latter slightly shorter. After all that has been said, this seems to be entirely wrong! This geometry was, however, said to improve the stability of the scale by reducing sensitivity once the beam deflected from the horizontal and the parallelogram became very slightly distorted.

This in effect acted as a damper as the scale oscillated and the scale came to rest more quickly. The effect only really occurred when there was any significant off-centre loading so was in reality very slight. The design did not catch on elsewhere.

Fig. 4. ➤➤

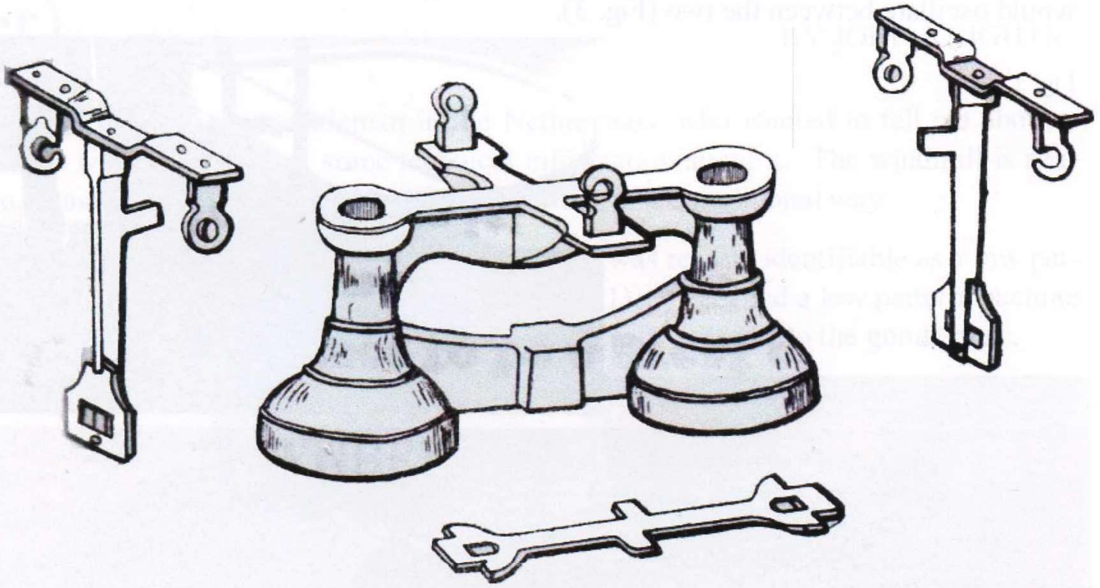
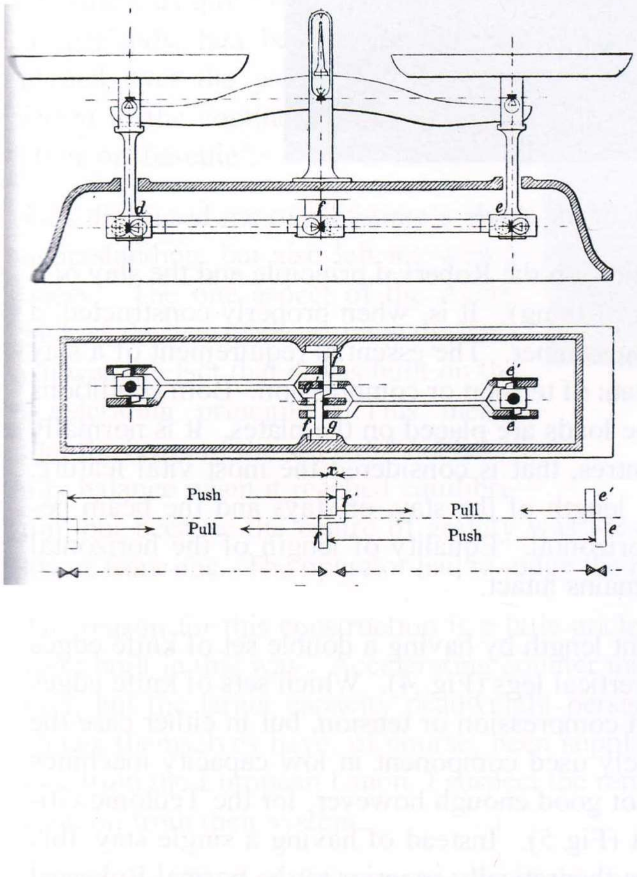


Fig. 5. ⮟⮟



The stays on accelerating machines are different. For a start, whether the machine is big or small, high pattern or low pattern, there are always two separate stays, one for each side of the scale. The design is a 'hook and eye' like component (Fig.6). The internal diameter of the eye equals the width of the hook and in this way the compression and tension lengths of the component remain equal, thus ensuring the integrity of the parallelogram under all conditions.

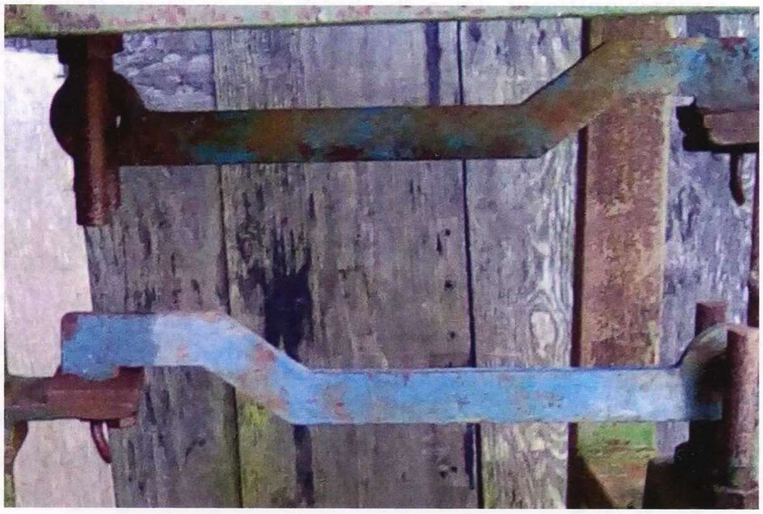
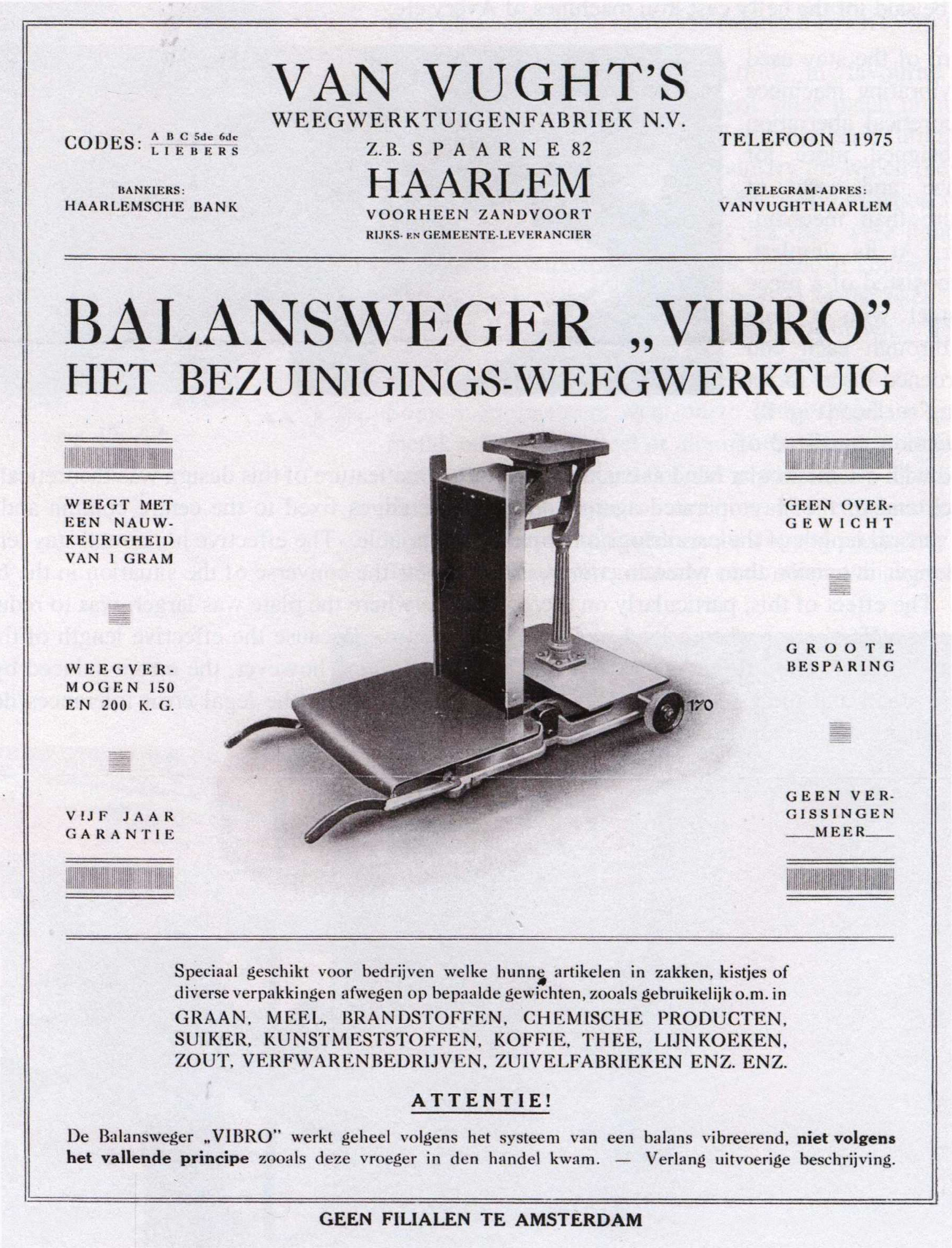


Fig.6. ➤➤

No sooner had I become aware that British deadweight machines were used in the Netherlands than I received a whole host of material from that very country showing that a number of Dutch manufacturers produced or marketed this type of scale, described as 'Balansweger' (Fig.7). A word that cropped up in the otherwise incomprehensible descriptions of these machines (monoglot idiot that I am) was 'Vibro,' which would appear to be emphasising the fact that they were being made as 'balancing' scales instead of the British accelerating pattern.



CODES: A B C 5de 6de / LIEBERS

BANKIERS:
HAARLEMSCHE BANK

VAN VUGHT'S
WEEGWERKTUIGENFABRIEK N.V.
Z.B. SPAARNE 82
HAARLEM
VOORHEEN ZANDVOORT
RIJKS- EN GEMEENTE-LEVERANCIER

TELEFOON 1975

TELEGRAM-ADRES:
VANVUGHTHAARLEM

BALANSWEGER „VIBRO"
HET BEZUINIGINGS-WEEGWERKTUIG

WEEGT MET EEN NAUWKEURIGHEID VAN 1 GRAM

WEEGVERMOGEN 150 EN 200 K. G.

VIJF JAAR GARANTIE

GEEN OVERGEWICHT

GROOTE BESPARING

GEEN VERGISSINGEN MEER

Speciaal geschikt voor bedrijven welke hunne artikelen in zakken, kistjes of diverse verpakkingen afwegen op bepaalde gewichten, zooals gebruikelijk o.m. in GRAAN, MEEL, BRANDSTOFFEN, CHEMISCHE PRODUCTEN, SUIKER, KUNSTMESTSTOFFEN, KOFFIE, THEE, LIJNKOEKEN, ZOUT, VERFWARENBEDRIJVEN, ZUIVELFABRIEKEN ENZ. ENZ.

ATTENTIE!

De Balansweger „VIBRO" werkt geheel volgens het systeem van een balans vibreerend, **niet volgens het vallende principe** zooals deze vroeger in den handel kwam. — Verlang uitvoerige beschrijving.

GEEN FILIALEN TE AMSTERDAM

Fig. 7. ⩓⩓

As mentioned earlier, some British deadweight machines were made as vibrating scales. These were usually made by smaller manufacturers who produced lightweight machines designed principally for agricultural use. Most of the ones I have seen were made by businesses located in the East of England and were used in great numbers by fenland potato growers. The scales were designed to be set up in the fields at the time of harvest so needed to be lightweight and easily transportable. Whatever other qualities they possessed, this could not be said for the hefty cast iron machines of Avery etc.

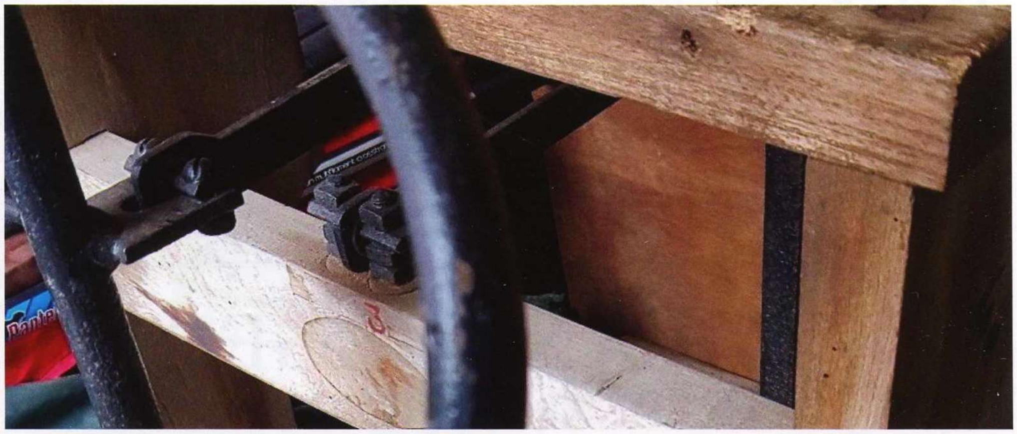
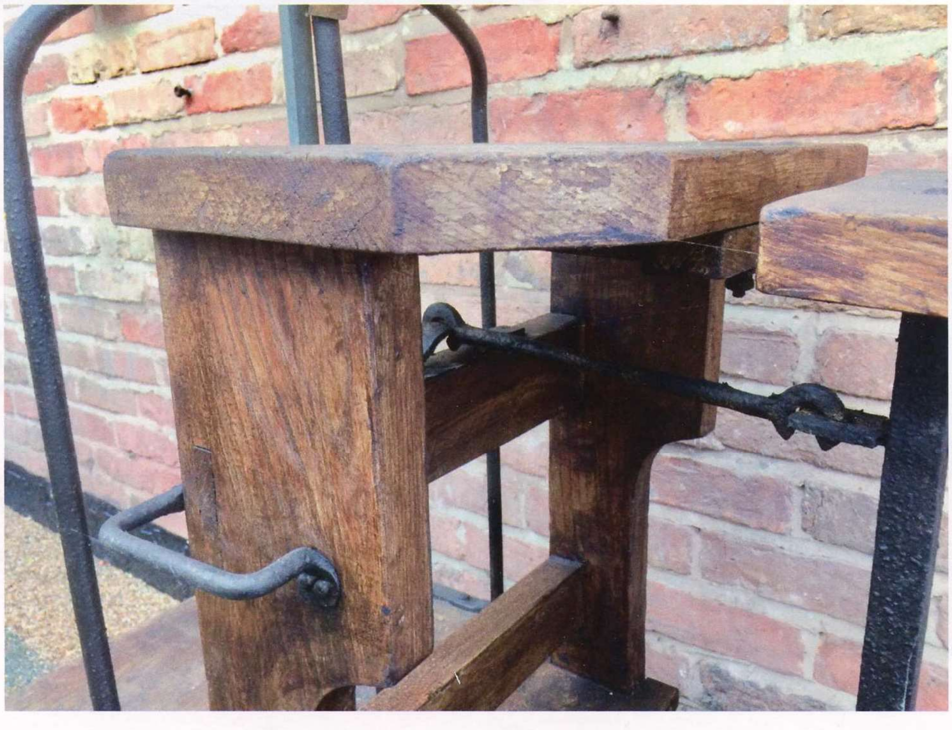


Fig. 8. ⮝⮝

The pattern of the stay used on these vibrating machines was a theoretical aberration clearly designed more for convenience and ease of manufacture than mechanical purity. At its simplest, the stay consisted of a piece of flat steel with a hole punched through each end with a hardened insert to act as a bearing surface (Fig. 8). Another version consisted of an iron rod with a semicircular bend at each end (Fig. 9). One feature of this design was theoretically correct in that each end of the stay operated against double knife edges fixed to the centre column and the legs. Thus, the vertical length of the parallelogram remained invariable. The effective horizontal stay length however was longer in tension than when in compression. This is the converse of the situation in the balance of Westphal. The effect of this, particularly on the goods side where the plate was larger, was to reduce stability and create a 'fast' error when a load was placed off centre. Because the effective length of the vertical components in the inverted Roberval pattern is comparatively long however, the errors induced by the stay length were small and these machines quite happily operated within the legal error tolerances despite the flawed design.

Fig. 9. ➤➤



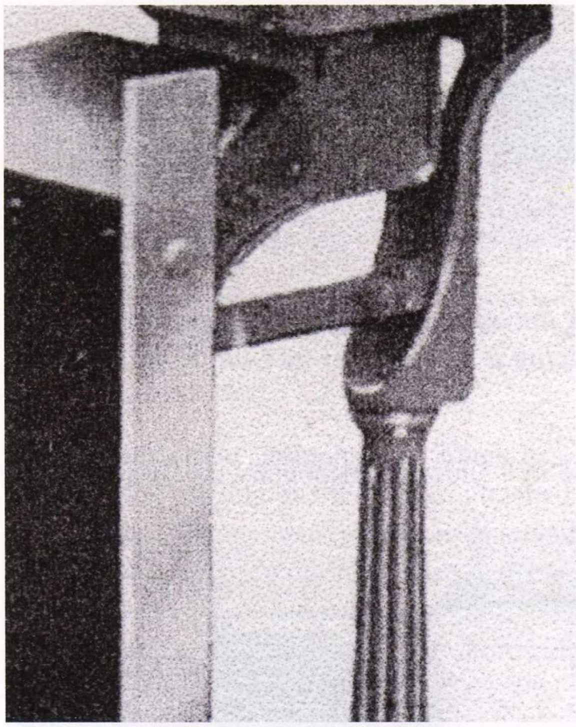


Fig. 10. ⮝⮝

The stays on the 'Vibro' Dutch machines were clearly not the hook and eye type of the British deadweight (Fig. 10) although the detail was not identifiable in the illustrations. The stays on the Arnhem scale are similarly seen as being different from the British version, suggesting that 'export' versions were manufactured by the British makers. Presumably the rear and front stops were also adjusted to allow the balanced beam to oscillate.

The low pattern deadweight is, I think, my favourite scale, especially the rural lightweight pattern, once much produced in the area of England where I live. They were basic, utilitarian devices, but they ideally served the industry for which they were produced. They were originally made mainly of wood with a minimal amount of steel attached so that they were lightweight and comparatively inexpensive. This meant of course that they did tend to decay when left in the open or at the back of the barn. Those that turn up now are usually somewhat decrepit with worm, rust and rot.

Some manufacturers went on to make these scales entirely of metal, either sheet steel or aluminium (Fig. 11), maintaining the lightweight construction of the predecessor. There was still a demand for this type of machine into comparatively modern times. Some manufacturers only stopped producing them in the 1980's when new Regulations came along which were more difficult to satisfy.

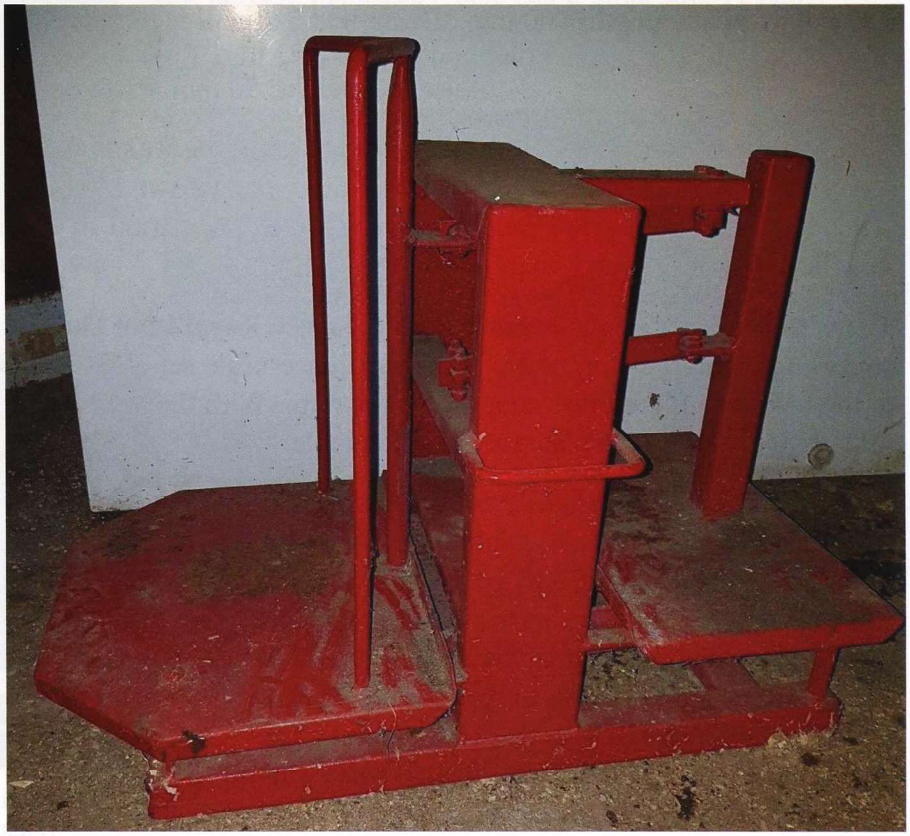


Fig. 11. ➤➤

A Newly Discovered Folding Balance with Sliding-Poise by Anthony Wilkinson!

BY MICHAEL FOSTER

A. Wilkinson is recognized as the self-proclaimed inventor of the self-erecting brass scale of the type known as the Lancashire Gold Balance. He is known for producing a wide variety of Gold Coin balances with turn-poises, but not a sliding-poise balance, until now.

An Anthony Wilkinson Folding Guinea balance with sliding-poise in a slide-top mahogany box has recently come to light:

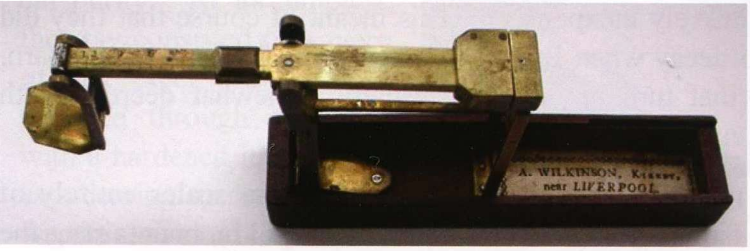


Figure 1a. ▲▲ Anthony Wilkinson Guinea Balance with Sliding-poise set to test a Guinea.

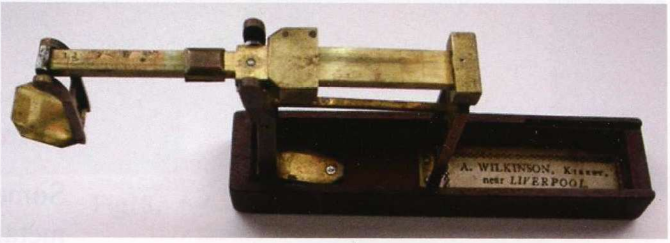


Figure 1b. ▲▲ Anthony Wilkinson Guinea Balance with Sliding-poise set to test a Half-guinea.

Dimensions:

Beam length: 100 mm. Beam width at poise: 16.0 mm. Beam width at Platter: 5.5 mm.
Poise end to pivot: 52 mm. Pivot to platter pivot: 48 mm.
Poise rest height: 50 mm. Pivot height: 56 mm.

This balance of the sliding-poise type is for testing the weight of Guineas and Half-guineas against the Least Current Weight (LCW) of 5dwt 8gr for Guineas and 2dwt 16gr for Half-guineas coined since the 31st day of December 1771, as set by the 24th June 1774 Proclamation of George III. Reference the *London Gazette,* from Tuesday July 5, to Saturday July 9, 1774.

The author has tested the balance with the 1821 Royal Mint Guinea (5dwt 8gr) and Half-guinea (2dwt 16gr) coin weights on the coin plate. With the Pence-scale set at 0, the coin weights just raise the fixed–poise end of the balance off the brass support by 1-2 mm. With the Pence-scale set at 1 pence or ½ grain, the balance is fully deflected with the plate touching the table.

The brass beam is rectangular in section and has a rectangular brass fixed-weight riveted to the beam to balance the weight of the hanger and coin plate. An additional brass sliding-poise portion, is set at the rectangular fixed-weight end to test the Guinea, and closest to the fulcrum against a steel pivot plate to test the Half-guinea. The sliding-poise is made of two brass parts surrounding the beam held together with two rivets. It appears to have a flat spring inside on the riveted side to hold it against the beam.

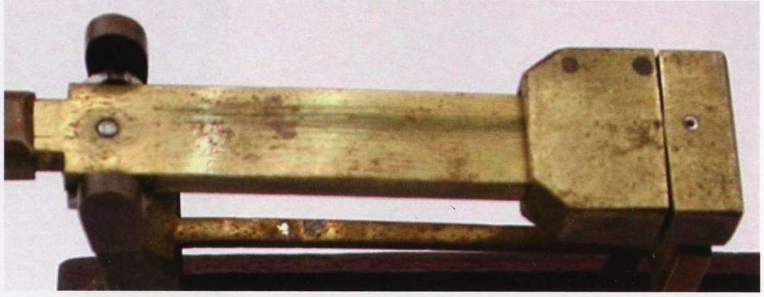


Figure 2. ▲▲ Sliding-poise set to right to test Guineas. Fixed-weight riveted to the right beam end.

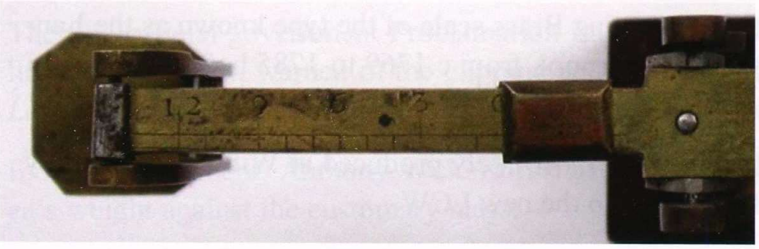


Figure 3. ▲▲ Pence or missing value-scale with graduations from 0-12 pence or 0-6 grains of gold.

A small rectangular sliding weight or Pence-scale on the load arm of the beam registers on graduations that show discrepancies in the value of underweight coins: 0 to 12 pence light, at the current rate of 2 pence per grain of gold. The coin to be tested was placed on a folding coin plate suspended by a H-shaped hanger.

The brass support columns with hinge has a steel flexure (flat) spring at the bottom attached to the case. The column must be raised manually into the working position after the case is opened. The weight end of the beam rests upon a thin brass frame which is pulled up by a link connecting it to the columns.

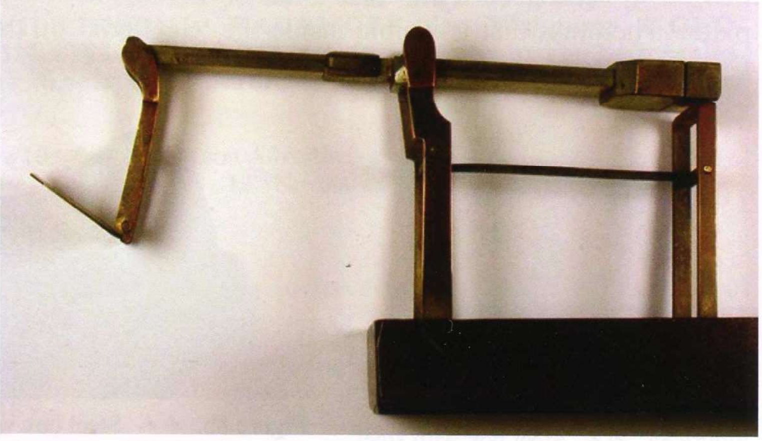


Figure 4. ▲▲ Anthony Wilkinson Guinea balance side view with sliding poise set to test a Guinea.

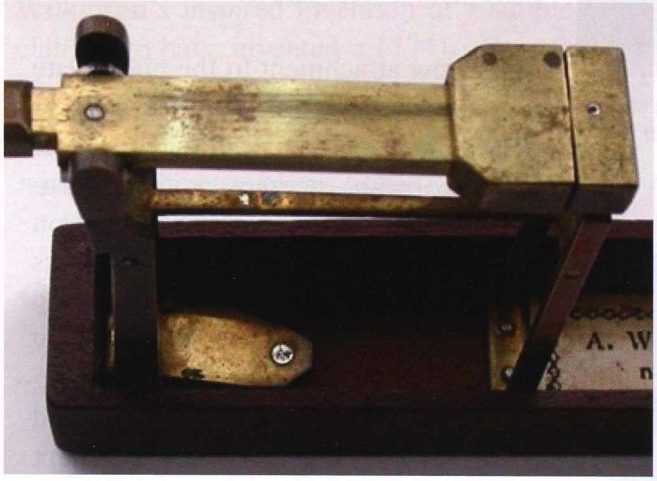


Figure 5. ▲▲ Flexure (flat) spring and brass support columns

The narrow mahogany box has a slide top. A paper label with: 'A. WILKINSON, KIRKBY, / near LIVERPOOL.' is pasted inside the box.

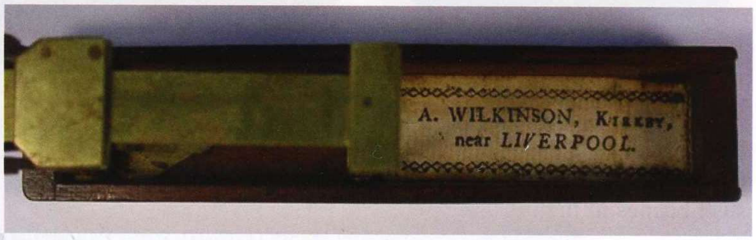


Figure 6. ▲▲ Anthony Wilkinson box label.

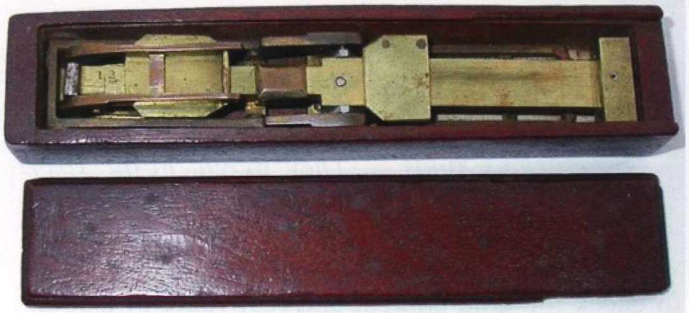


Figure 7. ▲▲ Anthony Wilkinson Guinea balance folded in mahogany box with slide top.

Box Dimensions: Length 117 mm. Width: 25 mm.
Thickness: 14 mm.

Anthony Wilkinson claimed to be the inventor of the Self-erecting Brass scale of the type known as the Lancashire Gold Balance. He was in business in Kirkby, near Liverpool, from c.1769 to 1785 before moving to Ormskirk, Lancashire, where he stayed until he died in 1803.

The author believes that this Folding Sliding-poise balance was most likely produced at Wilkinson's Kirkby workshop shortly after 1774 to test the Guinea and Half-guinea to the new LCW.

In addition to the Sliding-poise, it incorporates some design and manufacturing features not found on known A. Wilkinson Folding and Self-erecting Gold Balances.

Looking closely at the hanger and coin plate at the load end of the beam, you can see the rounded-edge 'steel box' with steel knives that insert into the steel bushes visible in the pivot holes in the hanger for the coin plate. The brass that is visible inside the 'steel box' on the beam end is part of the beam where the steel box has been fitted.

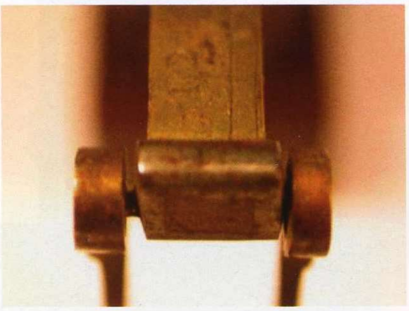


Figure 8a. ▲▲ Steel box with steel knives around brass beam end.

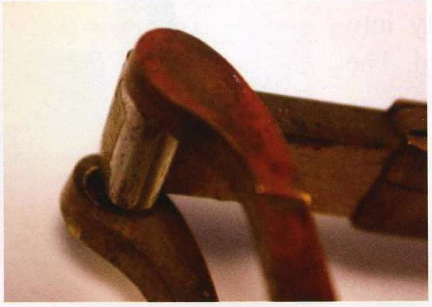


Figure 8b. ▲▲ Steel box with steel knives inserted in steel bushes in the hanger for the coin plate.

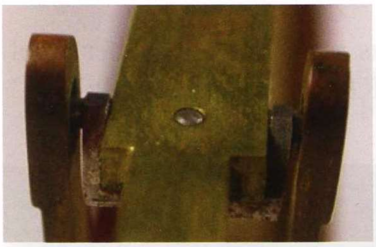


Figure 9a. ▲▲ Steel 'pivot plate' a U-shaped block with steel knives that inserted into steel bushes in the brass support columns.

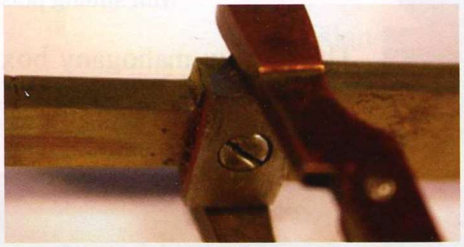


Figure 9b. ▲▲ Steel screw attaching the U-shaped steel block 'pivot plate' to the brass beam.

The fulcrum of this balance has a 'pivot plate' a U-shaped steel block with steel knives that insert into steel bushes in the brass support columns. The brass beam was attached to the steel pivot plate with a steel screw.

The screw attachment to the pivot plate meant that the beam with the sliding-poise could be replaced with another suitable beam, perhaps with a turn-poise design, although no such adaption has been found yet. Note that the brass beam was reduced in size at the load end, after the fulcrum to take the Penny -slide. The brass beam at the sliding poise end is sized to take the poise and fixed weight and provide sufficient weight to test the guinea and half-guinea.

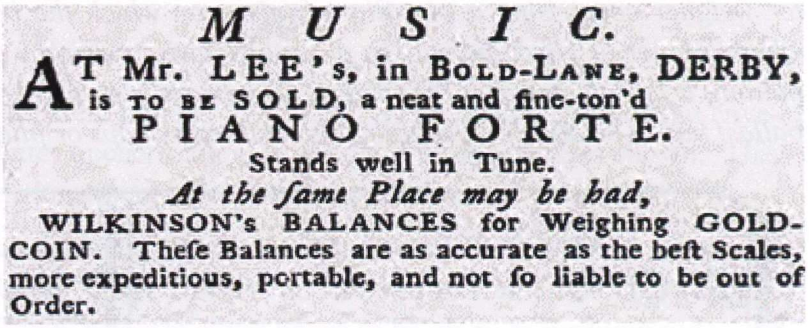
These design and manufacturing features would have added to the cost of the balance.

So why was this Sliding-poise balance produced by Anthony Wilkinson? In the mid-18th century, the gold coin in circulation in England was in very poor shape. In 1768, the *Leeds Intelligencer* of *August 9th* reported; *... counterfeit guineas are now circulating, of which there are various kinds ... They weigh, in air 101½ grains, in water 94½, and are worth about 11s 1d.*

A guinea customary mass was 5dwt 9gr or 129 grains at the time. These counterfeits were 21% under the acceptable customary mass. The weighing in water was to check the gold content and real value of a counterfeit guinea made of almost half copper to get the weight in air up. The counterfeit guinea at 11s 1d was 9s 11d under value! This amount of under value was becoming a major problem for businesses who accepted these coins. Banks took them at gold weight value, which was almost always a significant loss against the face value of 21s and they couldn't be used to pay their business taxes!

The first official government Proclamation issued at the *White Lion, Halifax, 14th December 1769*, by the Solicitor to the Mint, warned of the clipping and counterfeiting of gold coins. The problem persisted, from *The Leeds Mercury* of 13th August 1776; 'The public will do well to weigh all the guineas they take'.

In this environment, Anthony Wilkinson started to prototype Folding Gold Coin Balances to check the Guinea's weight against the customary mass.



M U S I C.

AT Mr. LEE's, in BOLD-LANE, DERBY, is TO BE SOLD, a neat and fine-ton'd PIANO FORTE.

Stands well in Tune.

At the ſame Place may be had,

WILKINSON's BALANCES for Weighing GOLD-COIN. Theſe Balances are as accurate as the beſt Scales, more expeditious, portable, and not ſo liable to be out of Order.

Figure 10. ⋀⋀ Wilkinson Advertisement in the *Derby Mercury* - Friday, 12th November 1779.

J. Ramsden, a London based inventor and instrument maker, was producing a Sliding-poise balance for ten Portuguese and English gold coins from 1770 until 1778.

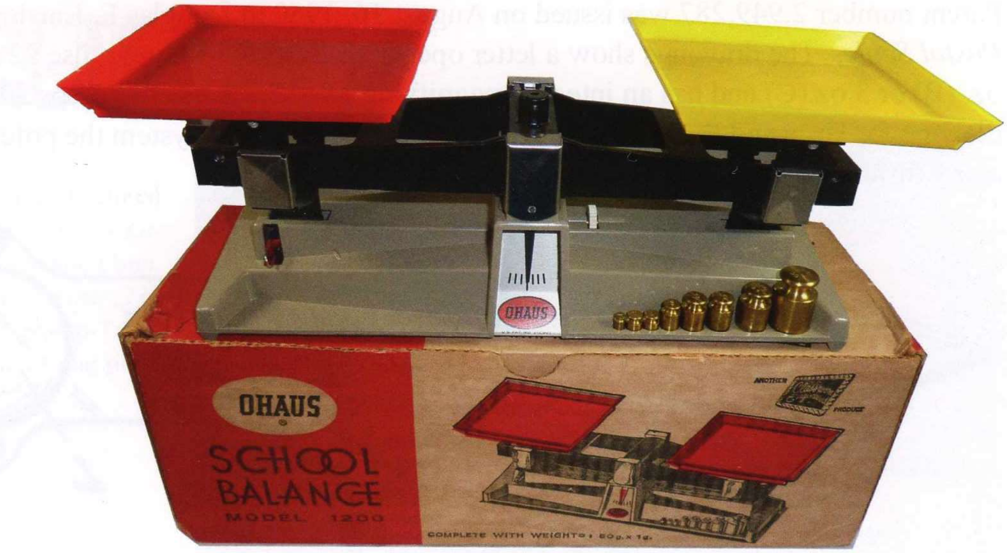
If Wilkinson took note of Jesse Ramsden's Sliding-poise balance, he could have produced his own two-coin Guinea and Half-guinea version in Kirkby about 1774-76 to introduce after the new current weight for Guineas was set in the 1774 Proclamation.

The more expensive to produce sliding-poise prototype design appears to have been abandoned in favor of Wilkinson's inspired invention of a simple turn-poise balance that self-erected with the box opening (that he claimed to have invented c.1774). The more expensive to produce Sliding-poise prototype design appears to have been abandoned, judging from their extreme rarity.

Reference:

WEIGHING COINS - English folding gold balances of the 18th and 19th Centuries by Michael A. Crawforth

SHOWCASE



This Ohaus School Balance, Model 1200 is complete with brass weights and was manufactured around 1971. The base measures 11" by 3½" and the red and yellow plastic plates measure 4½" by 4½". The base is of die cast metal. The included directions explain how to conduct specific gravity experiments using the balance. Jack Young Collection.

Letter Opener Scales, Part 6

BY JAN BERNING

Patent number 2,890,036 was issued on June 9, 1959 to William Stelzer of Summit, New Jersey for *Letter Weighing Scales*. The patent reads in part *The object of the invention is to produce a simple and accurate letter weigher comprising a plurality of fulcra on which the beam may pivot and a plurality of notches into which a letter or envelope may be placed edgewise, whereby the user balances the upper part of the letter by holding it loosely between the fingers...The beam is manufactured slightly underweight, so that always some ballast has to be added. The ballast is retained by caps or plugs pressed into the recesses.*

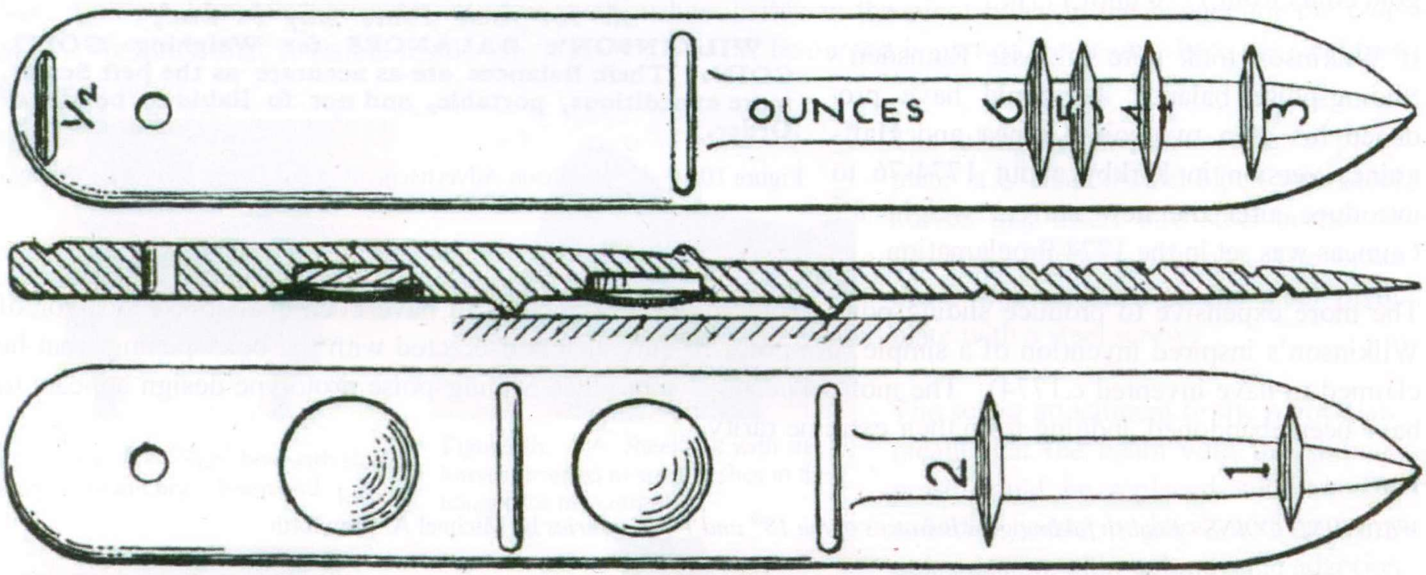


Figure 66. ΛΛ Patent number 2,890,036 was issued on June 9, 1959 to William Stelzer of Summit, New Jersey for *Letter Weighing Scales.* No examples are known and it is not known if any were produced. Note the similarities to Figure 53.

Patent number 2,949,287 was issued on August 16, 1960 to Douglas F. Linsley of Westport, Connecticut for a *Postal Scale*. The drawings show a letter opener scale with a sliding poise 22 which may indicate 1 oz (A) 2 oz. (B) or 3 oz.(C) and has an integral magnifying glass L. It has two steps 20a and 21a at the end of the handle, one for large and the other for small envelopes. With this system the potential for error is great, due to many different envelope sizes. (Figure 67)

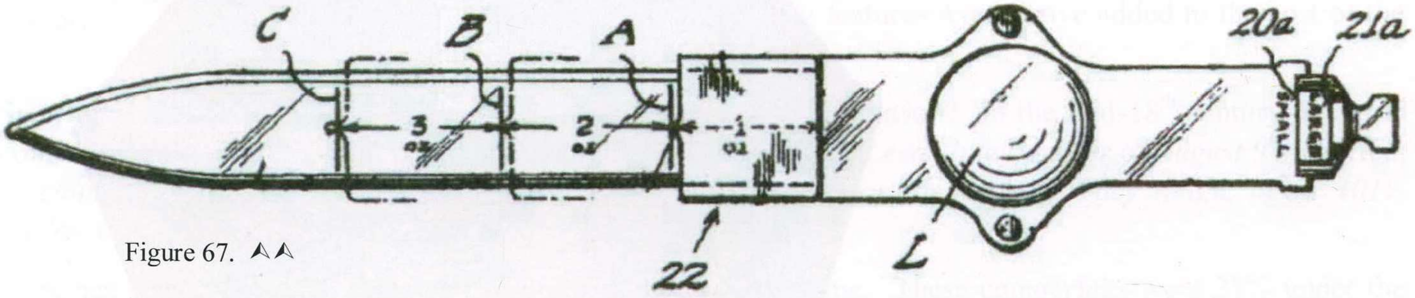


Figure 67. ΛΛ

The fulcrum 16 and a letter positioning prong 17 are attached to the handle of the letter opener scale as shown in figure 68.

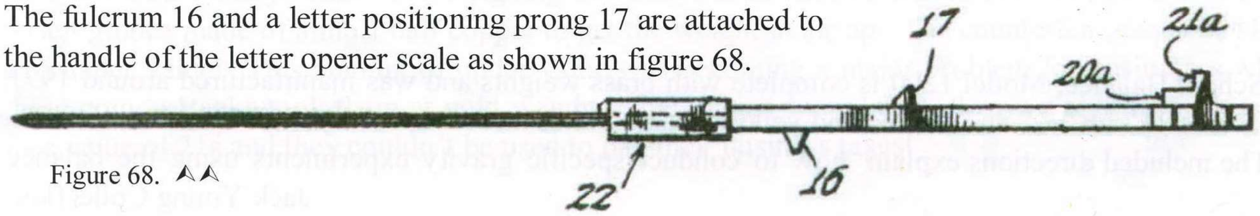


Figure 68. ΛΛ

Figure 69. ➤➤

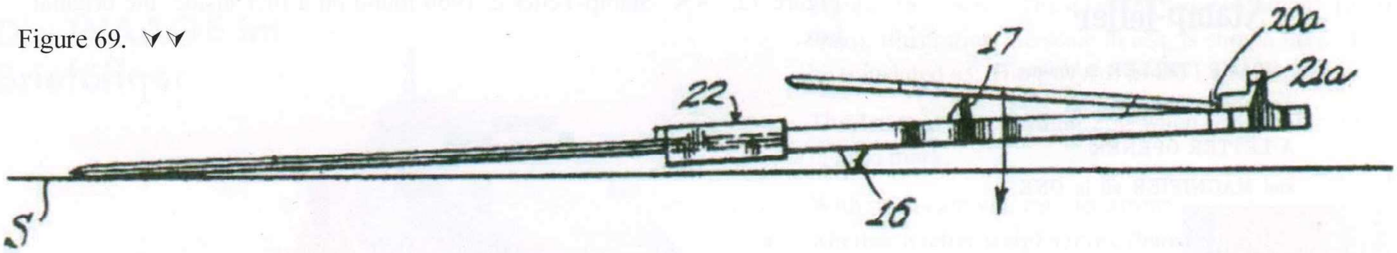


Figure 69 shows another drawing from Linsley's patent number 2,949,287. Here, the position of the envelope on the positioning prong 17 as well as the letter opener scale position on the table top S is shown. This scale is also a rocker type scale. No examples are known and it is not known if any were produced.

A similar letter opener scale with design patent number D188,151 was issued on June 7, 1960 to Linsley as well. (Figure 70) This patent was entitled *Combined Letter Opener, Scale and Reading Glass* and was produced in clear DuPont Lucite and marketed as *Stamp-Teller* in silver boxes to be given as wedding gifts.

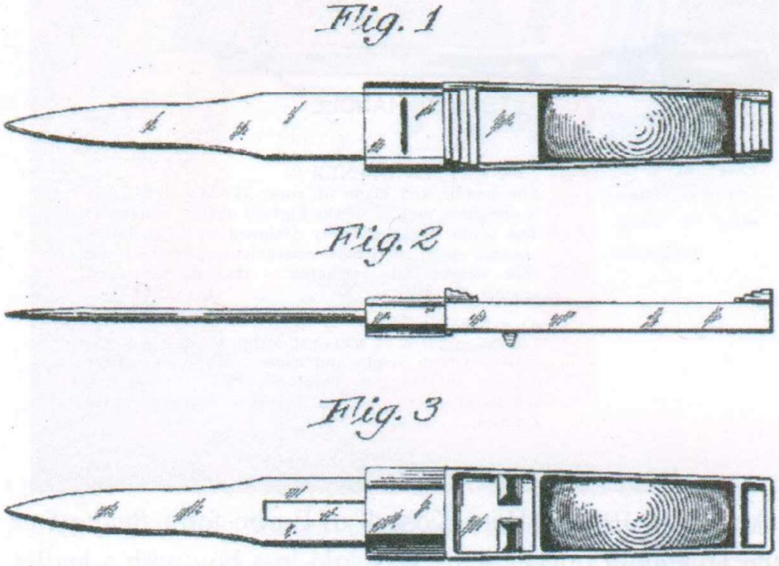
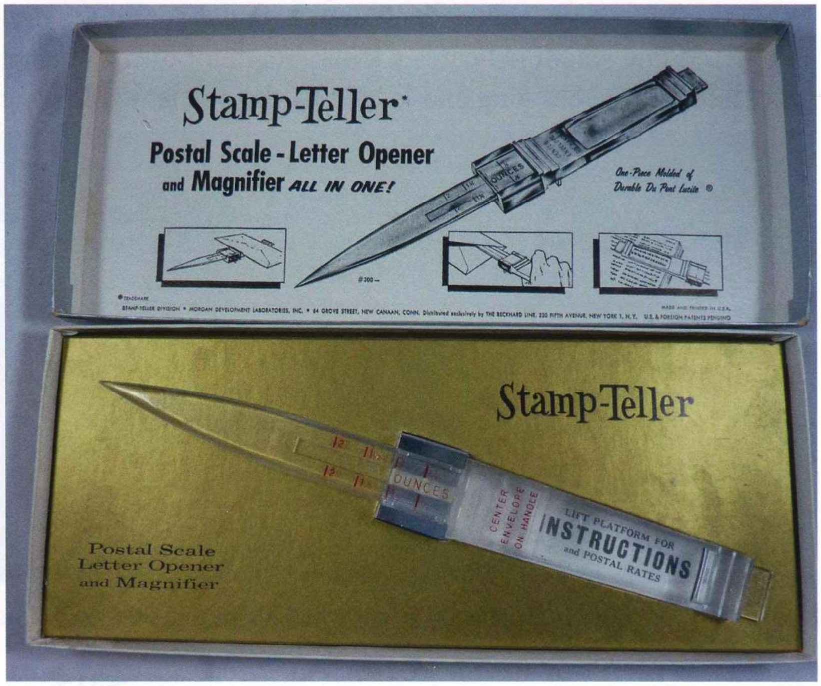
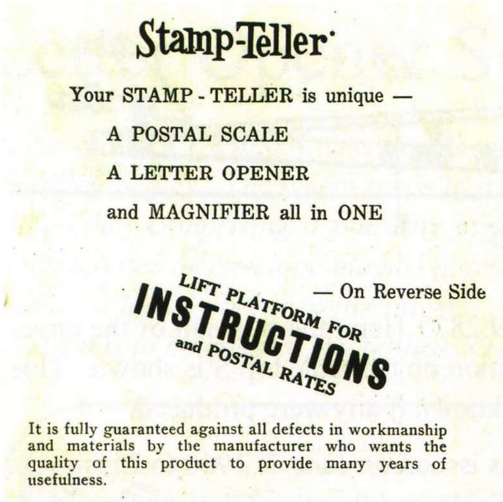


Figure 70. ➤➤ Design patent number D188,151 was issued to Douglas F. Linsley of Westport, Connecticut on June 7, 1960. The patent drawings show similarities to Linsley's patent number 2,949,287 shown in figures 67, 68 and 69 shown above. Figure 2 at left shows the steps on the handle for different sized envelopes.

Figure 71. ➤➤ The *Stamp-Teller* was manufactured by *Stamp-Teller Division • Morgan Development Laboratories, Inc. • 64 Grove Street, New Canaan, Conn. Distributed exclusively by The Beckhard Line, 230 Fifth Avenue, New York 1, N.Y.* The Stamp-Teller measures 10⁵/8 inches long and is made of one piece molded DuPont Lucite®.


Stamp-Teller*
Postal Scale - Letter Opener
and Magnifier ALL IN ONE!
One-Piece Molded of Durable Du Pont Lucite ®
#300
* TRADEMARK
STAMP-TELLER DIVISION • MORGAN DEVELOPMENT LABORATORIES, INC. • 64 GROVE STREET, NEW CANAAN, CONN. Distributed exclusively by THE BECKHARD LINE, 230 FIFTH AVENUE, NEW YORK 1, N.Y.
MADE AND PRINTED IN U.S.A.
U.S. & FOREIGN PATENTS PENDING
Stamp-Teller
OUNCES
CENTER ENVELOPE ON HANDLE
LIFT PLATFORM FOR INSTRUCTIONS and POSTAL RATES
Postal Scale
Letter Opener
and Magnifier



Stamp-Teller

Your STAMP - TELLER is unique —

A POSTAL SCALE

A LETTER OPENER

and MAGNIFIER all in ONE

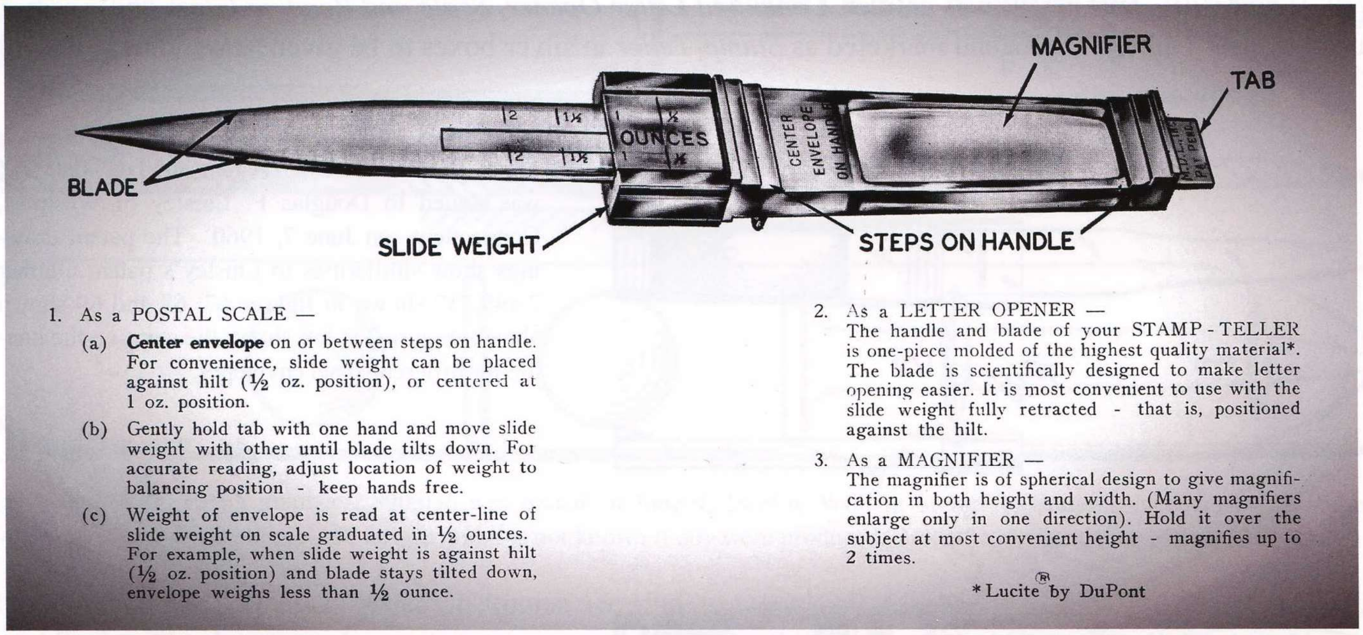
LIFT PLATFORM FOR
INSTRUCTIONS
and POSTAL RATES

— On Reverse Side

It is fully guaranteed against all defects in workmanship and materials by the manufacturer who wants the quality of this product to provide many years of usefulness.

Figure 72. ≺≺ Stamp-Teller c. 1960 found on a flier inside the original box.

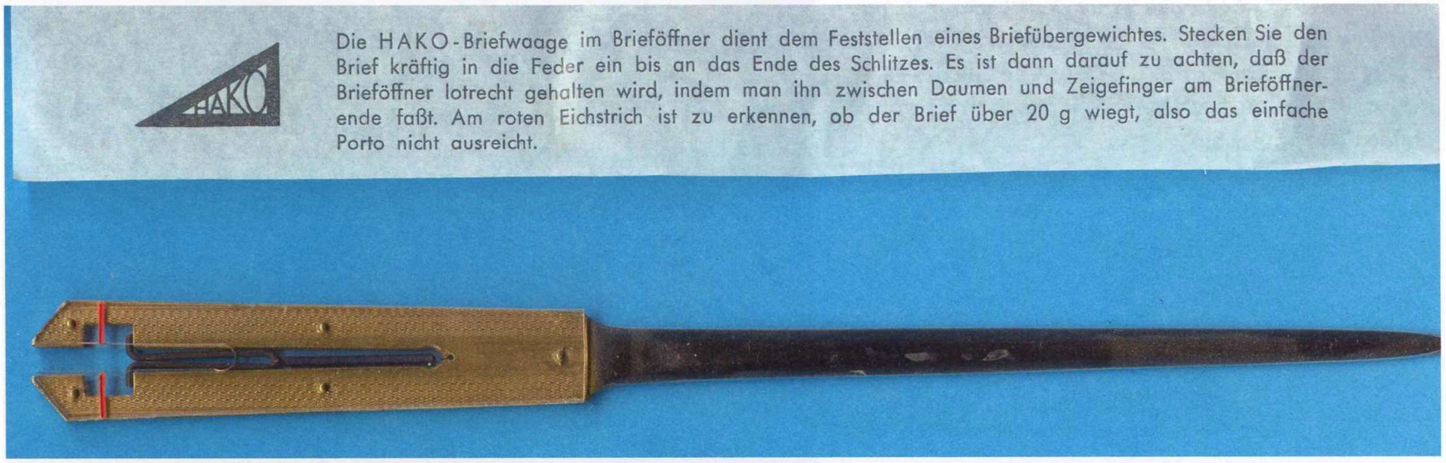
Figure 73. ⋎⋎ Instructions found inside the Stamp-Teller box explains how to use the implement as a postal scale, letter opener and magnifier.


MAGNIFIER
TAB
BLADE
SLIDE WEIGHT
STEPS ON HANDLE
OUNCES
2
1½
1
½
CENTER ENVELOPE ON HANDLE

1. As a POSTAL SCALE —
   (a) **Center envelope** on or between steps on handle. For convenience, slide weight can be placed against hilt (½ oz. position), or centered at 1 oz. position.
   (b) Gently hold tab with one hand and move slide weight with other until blade tilts down. For accurate reading, adjust location of weight to balancing position - keep hands free.
   (c) Weight of envelope is read at center-line of slide weight on scale graduated in ½ ounces. For example, when slide weight is against hilt (½ oz. position) and blade stays tilted down, envelope weighs less than ½ ounce.
2. As a LETTER OPENER —
   The handle and blade of your STAMP - TELLER is one-piece molded of the highest quality material*. The blade is scientifically designed to make letter opening easier. It is most convenient to use with the slide weight fully retracted - that is, positioned against the hilt.
3. As a MAGNIFIER —
   The magnifier is of spherical design to give magnification in both height and width. (Many magnifiers enlarge only in one direction). Hold it over the subject at most convenient height - magnifies up to 2 times.

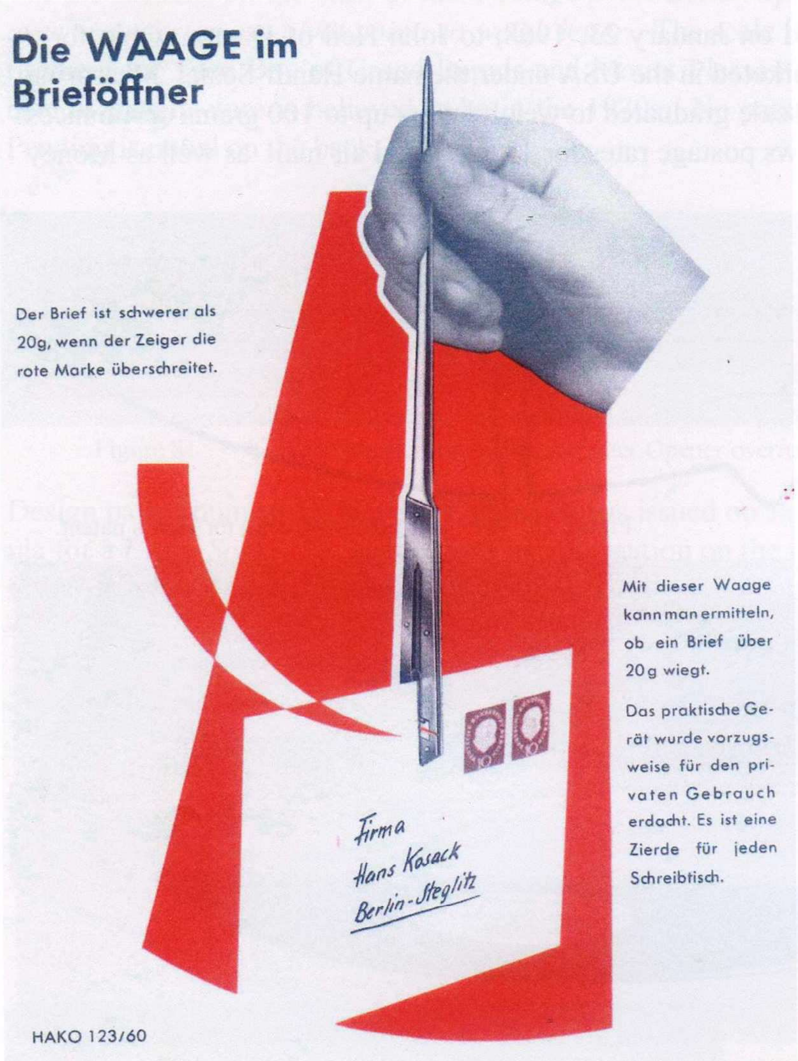
*Lucite® by DuPont

German patent number 1,877,236 was issued on August 8, 1963 to Hans Kosack of Berlin for a *Brieföffner mit Briefwaage (Letter Opener with Letter Scale).* This letter opener scale was sold in a box with a leaflet with the trade name Hako. It is an over under spring scale with a letter clip inside the handle of the opener and a red line which indicates a letter weight of over or under 20 grams, a common German letter weight. It measures 9¼ inches long and is held by the opener blade when used as a scale.



Die HAKO-Briefwaage im Brieföffner dient dem Feststellen eines Briefübergewichtes. Stecken Sie den Brief kräftig in die Feder ein bis an das Ende des Schlitzes. Es ist dann darauf zu achten, daß der Brieföffner lotrecht gehalten wird, indem man ihn zwischen Daumen und Zeigefinger am Brieföffnerende faßt. Am roten Eichstrich ist zu erkennen, ob der Brief über 20 g wiegt, also das einfache Porto nicht ausreicht.

Figure 74. ⋏⋏ This German letter opener scale was patented by Hans Kosack on August 8, 1963 and was sold under the name Hako.



Die WAAGE im Brieföffner

Der Brief ist schwerer als 20g, wenn der Zeiger die rote Marke überschreitet.

Mit dieser Waage kann man ermitteln, ob ein Brief über 20 g wiegt.

Das praktische Gerät wurde vorzugsweise für den privaten Gebrauch erdacht. Es ist eine Zierde für jeden Schreibtisch.

Firma
Hans Kosack
Berlin-Steglitz

HAKO 123/60

Figure 75. ≺≺ The German advertisement for the Hako, illustrating the scale in use, is shown here. It can be translated as: The SCALE in the Letter Opener.

The letter is heavier than 20g when the pointer crosses the red mark.

With this scale you can determine whether a letter weighs more than 20g.

This practical device was conceived for private use. It is an ornament for every desk.

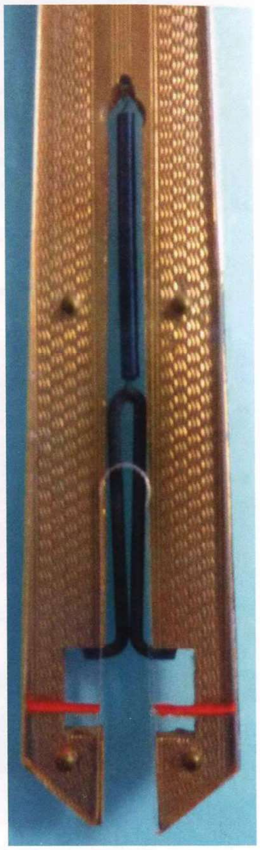


Figure 76. ➤➤ The detail shown here shows the built-in spring and letter clip as well as the red line that indicates 20 grams, the standard mail weight for a letter in Germany.

On December 21, 1965, patent number 3,224,516 was issued to William Stelzer of Bloomfield, Michigan for a *Letter Weighing Scale.* The patent reads as an introduction: *The novel weighing scale is related to the construction shown in my patent no. 2,890,036.* [Shown on page 4405 of this article.] The object *is to make the pin magnetic and the body of the scale of ferrous material so that the pin is held in the groove in which it is placed without special retaining means and can be easily moved to another groove if desired.*

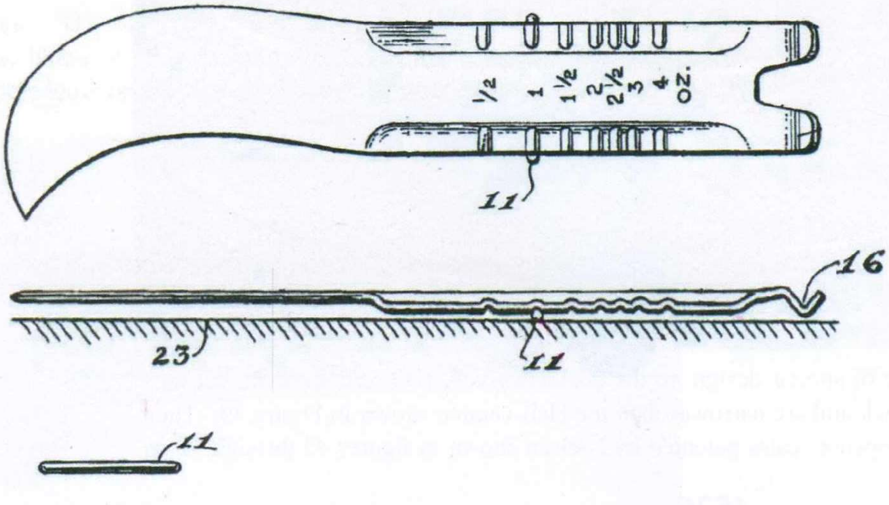


Figure 77. ≺≺ The drawings for Stelzer's patent no. 3,224,516 shown at left, show number 11 the magnetic pin which serves as a movable fulcrum, 16 the groove into which the letter to be weighed is stood and 23 the table top on which the scale lays. Note that the dagger shape of the blade may be used as a letter opener. The patent drawing shows, as an example, a scale graduated by ½ ounce from ½ to 3 and by ounce to 4. No example of this rocker type scale has been found and it is not known if it went into production.

Patent number 3,365,011 (Figure 78) was issued on January 23, 1968, to John Heil of Dayton, Ohio for a *Letter Balance*. This letter opener scale was marketed in the USA under the name Handi-Scale. Measuring 9¼ inches, it incorporates a sliding poise with a scale graduated to weigh letters up to 100 grams or 4 ounces and a ruler measuring to 8 inches. The back shows postage rates for 1st class and air mail as well as Money order fees for up to $100.00 value.

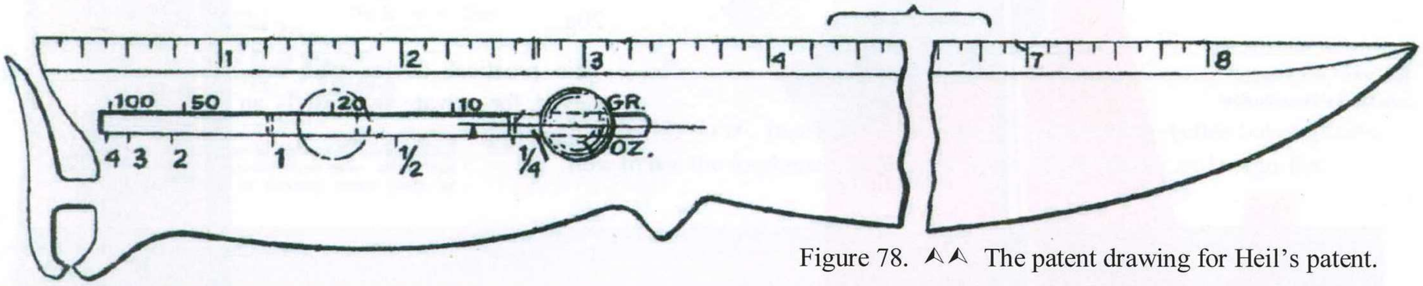


Figure 78. ▲▲ The patent drawing for Heil's patent.

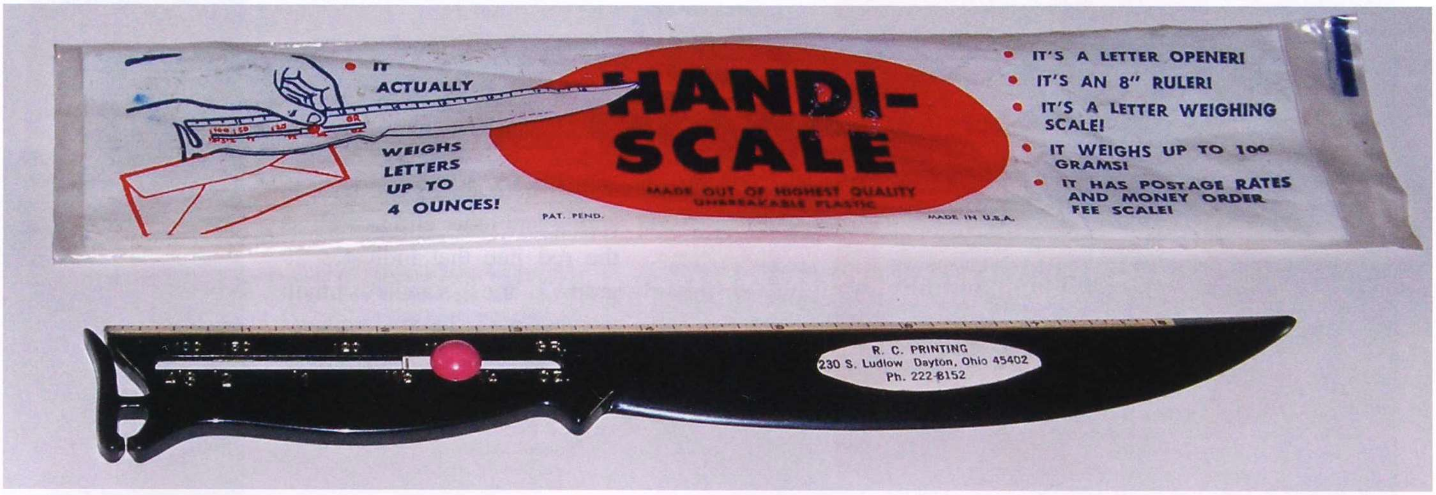

IT ACTUALLY WEIGHS LETTERS UP TO 4 OUNCES!
HANDI-SCALE
MADE OUT OF HIGHEST QUALITY UNBREAKABLE PLASTIC
PAT. PEND.
MADE IN U.S.A.
IT'S A LETTER OPENER!
IT'S AN 8" RULER!
IT'S A LETTER WEIGHING SCALE!
IT WEIGHS UP TO 100 GRAMS!
IT HAS POSTAGE RATES AND MONEY ORDER FEE SCALE!
R. C. PRINTING
230 S. Ludlow Dayton, Ohio 45402
Ph. 222-8152

Figure 79. ▲▲ Heil's patent number 3,365,011 was marketed and sold in a plastic sleeve as the Handi-Scale. It was made of black unbreakable plastic. A paper advertising sticker is affixed to the letter opener blade.

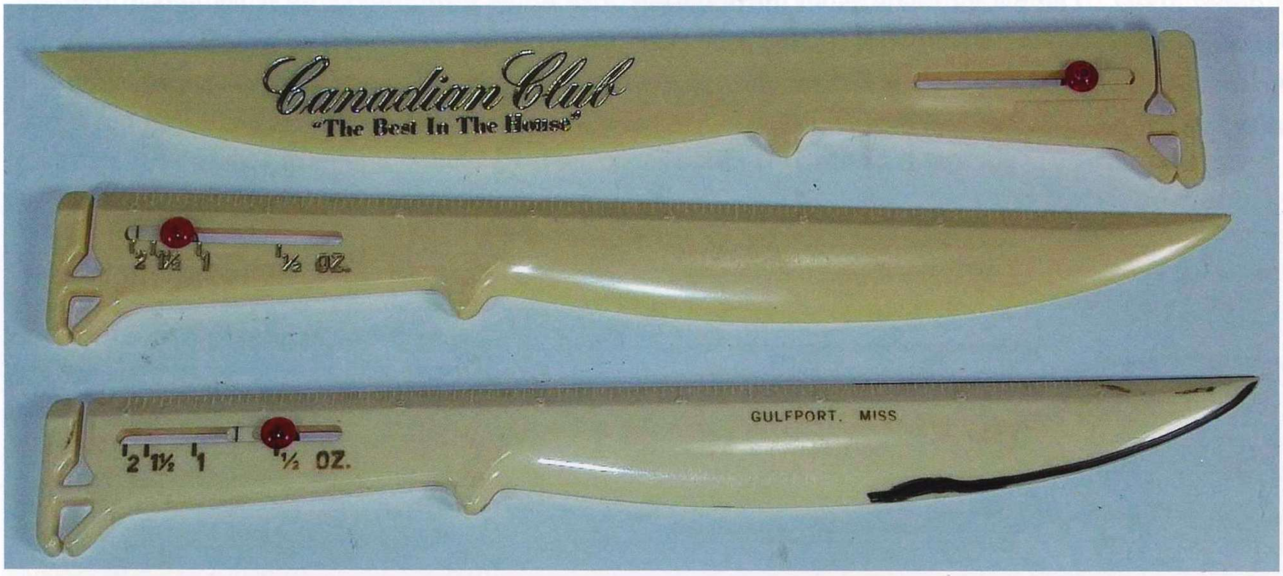


Figure 80. ▲▲ These letter opener scales are of similar design to the one above based on Heil's patent, but they lack the postal and money order rates on the back and are narrower than the Heil version shown in Figure 79. They are more similar in size and color to the letter opener scales patented by Nielsen shown in figures 45 through 52 on pages 4518-4520 of this article.

The instructions on the back of this *Postage Scale/Letter Opener* (Figure 81) reads as follows *Indicates-1 oz. over or under/ grasp pivot points to weigh letter.* The scale is made of flexible red plastic and bears an advertisement for Taco Boy of Grand Rapids and Mount Pleasant, Michigan, which began business in 1967. The date of manufacture is believed to be in the 1970s. No patent has been found in spite of the fact that Patent Pending is noted on the back.

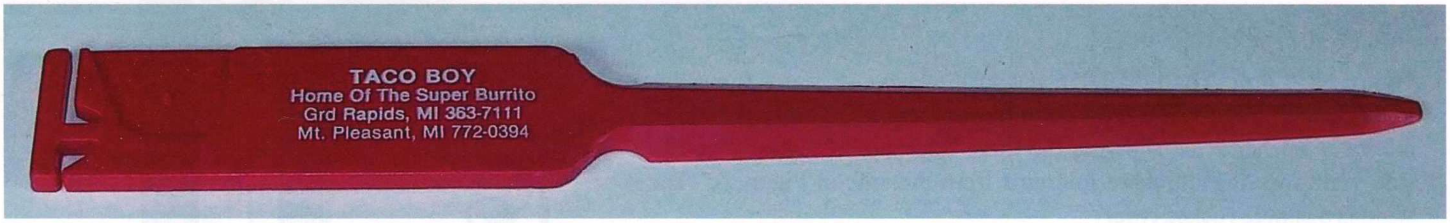


Figure 81. ⩓⩓ A red plastic Postage Scale/Letter Opener over/under type scale of unknown manufacture or date.

Design patent number D250,935 (Figure82) was issued on January 30, 1979 to Ter Lokvig of Encino, California for a *Letter Scale.* No instructions or information on the intended use is shown in the patent, However, an instructional leaflet is included within the plastic bag in which the scale is enclosed.

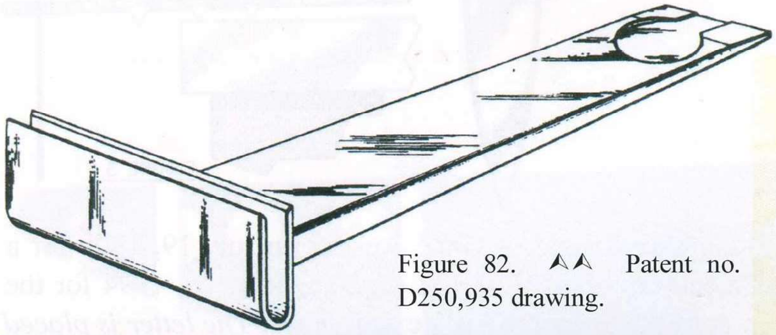


Figure 82. ⩓⩓ Patent no. D250,935 drawing.

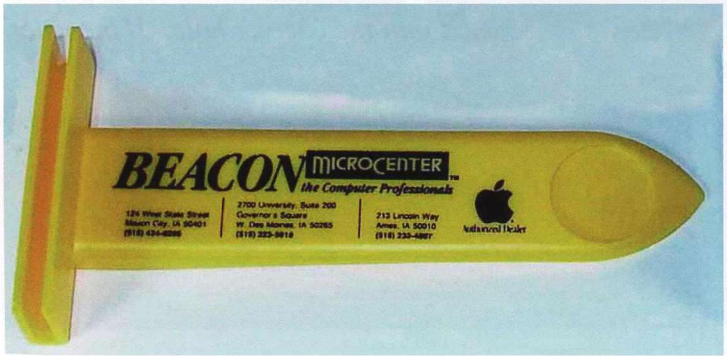
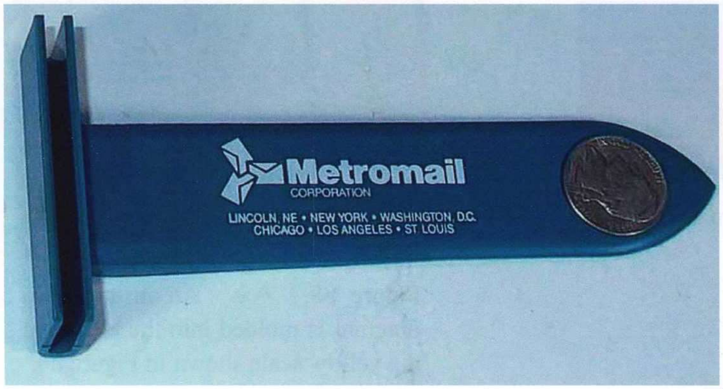
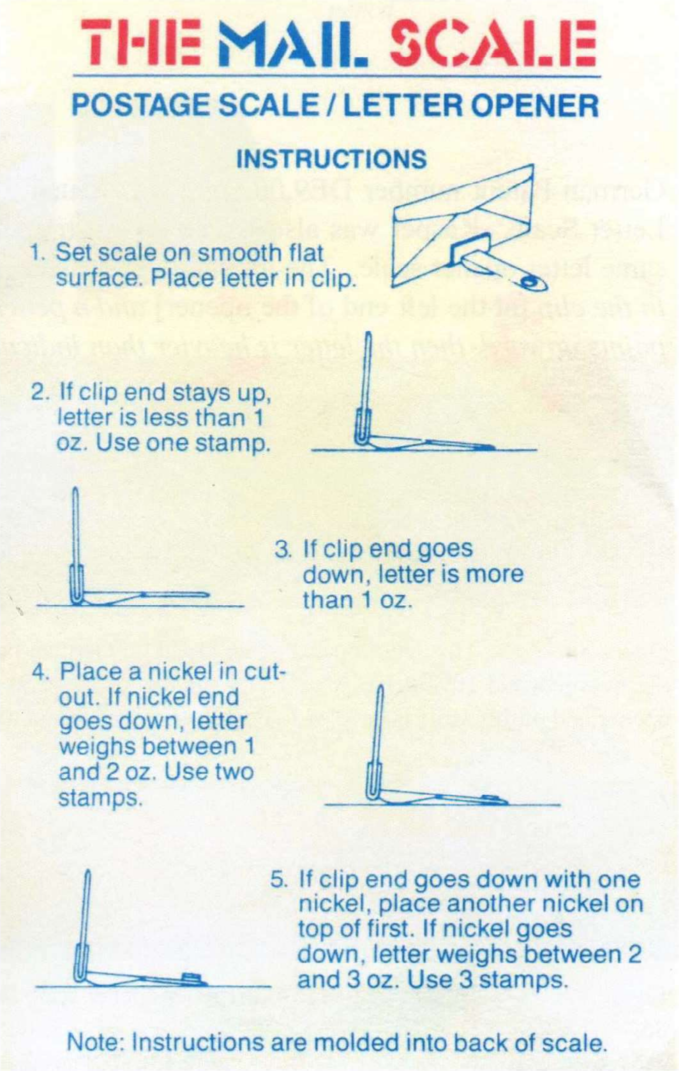


Figure 83. ⩓⩔ Two Mail Scale examples with advertisements. The blue one has a nickel inserted as directed in the instructions. These letter opener scales measure $5^{3}/_{8}$“ the letter slot is $2^{3}/_{8}$“ long.


Metromail
CORPORATION
LINCOLN, NE • NEW YORK • WASHINGTON, D.C.
CHICAGO • LOS ANGELES • ST. LOUIS



THE MAIL SCALE

POSTAGE SCALE / LETTER OPENER

INSTRUCTIONS

1. Set scale on smooth flat surface. Place letter in clip.
2. If clip end stays up, letter is less than 1 oz. Use one stamp.
3. If clip end goes down, letter is more than 1 oz.
4. Place a nickel in cut-out. If nickel end goes down, letter weighs between 1 and 2 oz. Use two stamps.
5. If clip end goes down with one nickel, place another nickel on top of first. If nickel goes down, letter weighs between 2 and 3 oz. Use 3 stamps.

Note: Instructions are molded into back of scale.

Figure 84. ⩓⩓ The instruction sheet included with the Mail Scale.

Patent number 4,420,056 was issued on December 13, 1983 to Lloyd Chapman of Boulder City, Nevada for a *Postage Scale.* In telephone conversations with the patent holder the author learned that only two samples were manufactured and both are held by the patent holder.

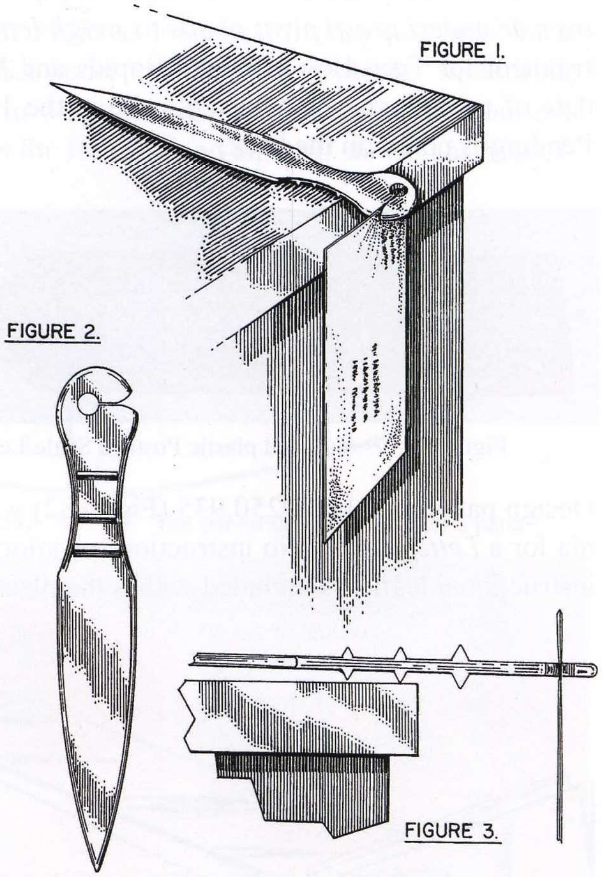


Figure 85. ➢➢ The 4,420,056 patent drawings, at right, show this letter opener scale in use on a table top in Figure 1, The back side of the letter opener scale showing the three fulcrums in Figure 2 and a side view showing the three fulcrums from the side in Figure 3. The scale is a simple rocker type.

German Patent number DE9,002,669 was issued to Günther Kasper of Graz, Austria on July 19, 1990 for a Letter Scale. Kasper was also issued an Austrian Patent number AT398,131 on September 26, 1994 for the same letter opener scale. The instructions, at the center of the opener, translate as follows: *The letter is placed in the clip* [at the left end of the opener] *and a pencil is horizontally inserted into the correct hole. If the ruler points upward, then the letter is heavier than indicated.*

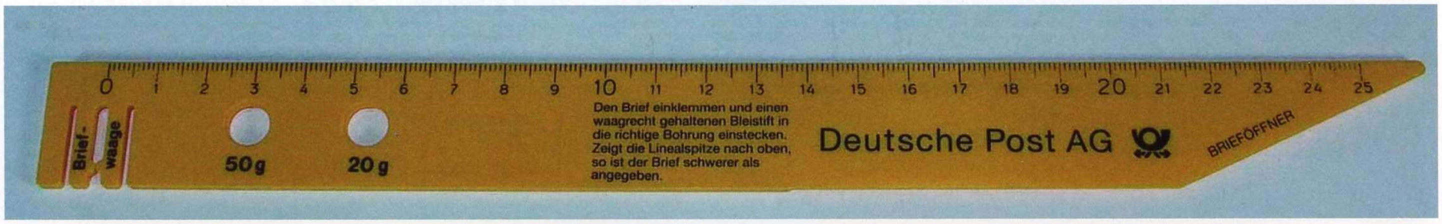

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
Brief-waage
50g
20g
Den Brief einklemmen und einen waagrecht gehaltenen Bleistift in die richtige Bohrung einstecken. Zeigt die Linealspitze nach oben, so ist der Brief schwerer als angegeben.
Deutsche Post AG
BRIEFÖFFNER

Figure 86. ⩓⩓ This letter opener scale based on German patent DE9,002,669 and Austrian patent AT398,131 is made of yellow plastic, measures 10¾ inches long, weighs letters of 20 or 50 grams and incorporates a 25 centimeter ruler in its design. The letter opener end of this scale is beveled to enable easy opening of any letter and bears an advertising for the German Post Office.

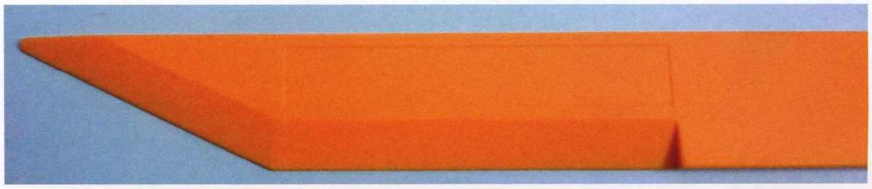


Figure 87. ⩓⩓ The beveled edge of the letter opener scale shown in Figure 86.

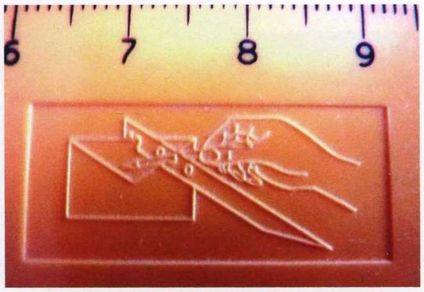


Figure 88. ⩓⩓ An instructional diagram is molded into the plastic of the yellow scale shown in Figure 86.

The Epistola is a combination letter balance and letter opener designed in 1995 by Teo Endlund from Sweden. The design was given awards in1995 from Sweden, in 1997 from Germany and in 1999 in Switzerland. It is made of stainless steel, measures $5^7/_8$ inches long and weighs letters of 20, 50 and 100 grams.

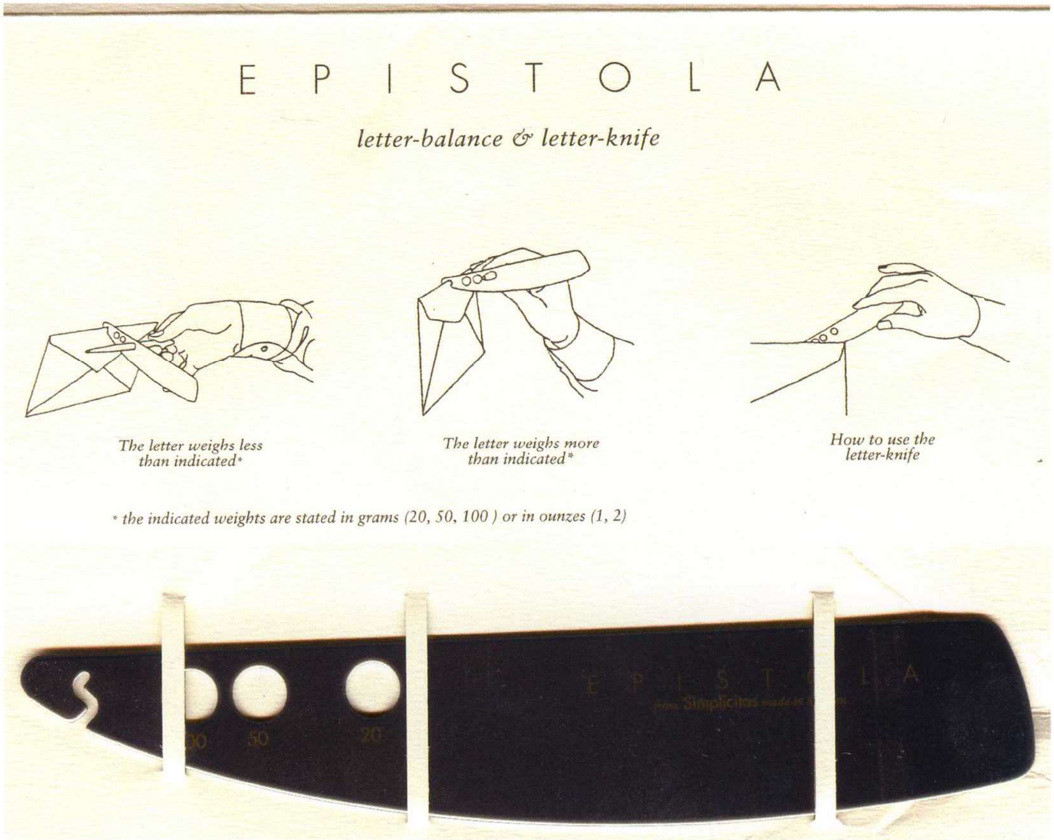
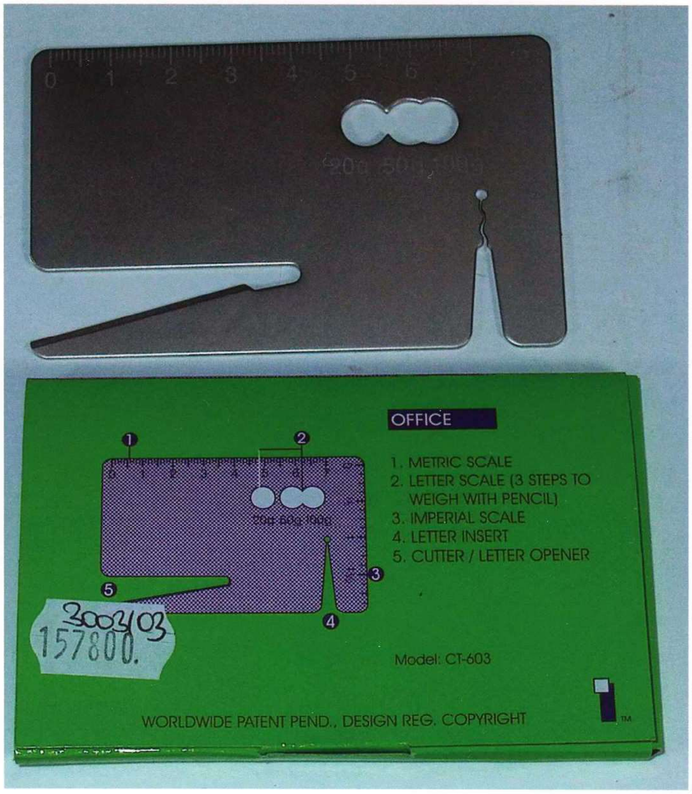

E P I S T O L A
letter-balance & letter-knife
The letter weighs less than indicated*
The letter weighs more than indicated*
How to use the letter-knife
* the indicated weights are stated in grams (20, 50, 100) or in ounzes (1, 2)
100
50
20
EPISTOLA
Simplicitas

Figure 89. ≺≺ The Epistola is marketed on a card with line drawings of the directions. It was manufactured by Simplicitas between 1995 and 1999.

The booklet enclosed with the scale reads in part as follows: *The letter-balance & letter-knife, **Epistola**, Latin for letter, offers a double helping hand for the busy writing desk; incoming mail is opened with the knife and outgoing letters are weighed using the holes and a pencil.*

Figure 90. ➢➢ This credit card sized letter opener scale was manufactured in the late 1990s and was marketed in a bright green box. It is made of stainless steel, weighs letters of 20, 50 and 100 grams and has rulers of 7 centimeters and 2 inches. The box reads Office Card Tool and includes a list of the five tools incorporated in the design.

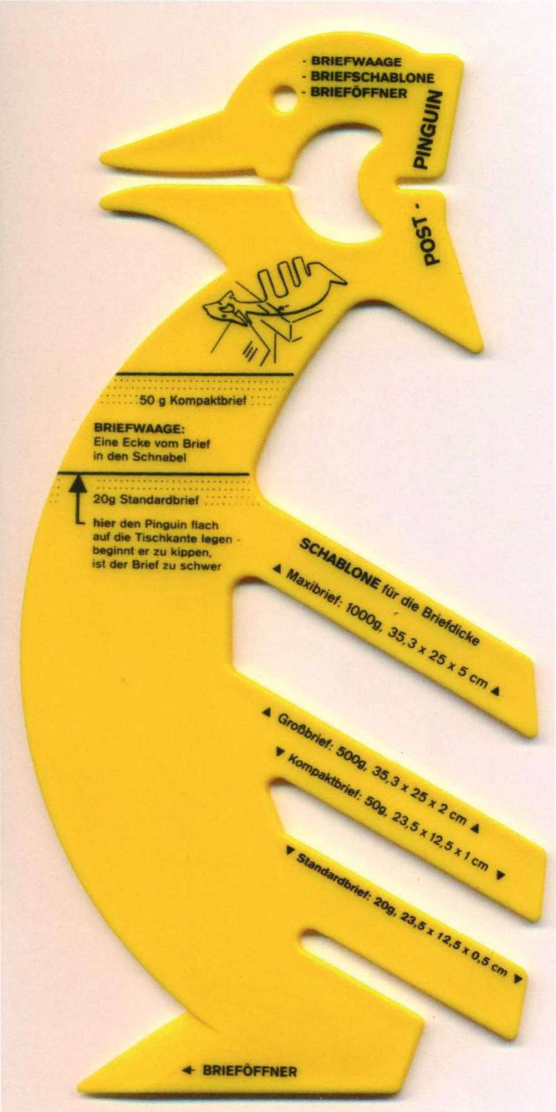

0 1 2 3 4 5 6
20g 50g 100g
OFFICE
1. METRIC SCALE
2. LETTER SCALE (3 STEPS TO WEIGH WITH PENCIL)
3. IMPERIAL SCALE
4. LETTER INSERT
5. CUTTER / LETTER OPENER
3003/03
157800.
Model: CT-603
WORLDWIDE PATENT PEND., DESIGN REG. COPYRIGHT

German patent number DE19,827,984 was issued on December 30, 1999 to Jens Schrader of Stuttgart, Germany. Marketed as the Post Penguin Figure the designer wrote *The Post-Penguin is designed as an advertising product and because he has so many useful tools, it will be used for a long time:*

* *With the gaps in its wings you can check the thickness of your letter. This is important in Germany with the "Deutsche Post"*
* *To check the weight you simply put the letter into the penguin's beak. Then you put the penguin with the letter in its beak flat on the surface of a table. There are two lines one for 20 g and one for 50 g...if the edge of the table is directly under the line and the penguin wants to fall the weight of the letter is heavier than 20 g or 50 g—according to the line.*
* *At the penguin's foot you have a letter opener.*

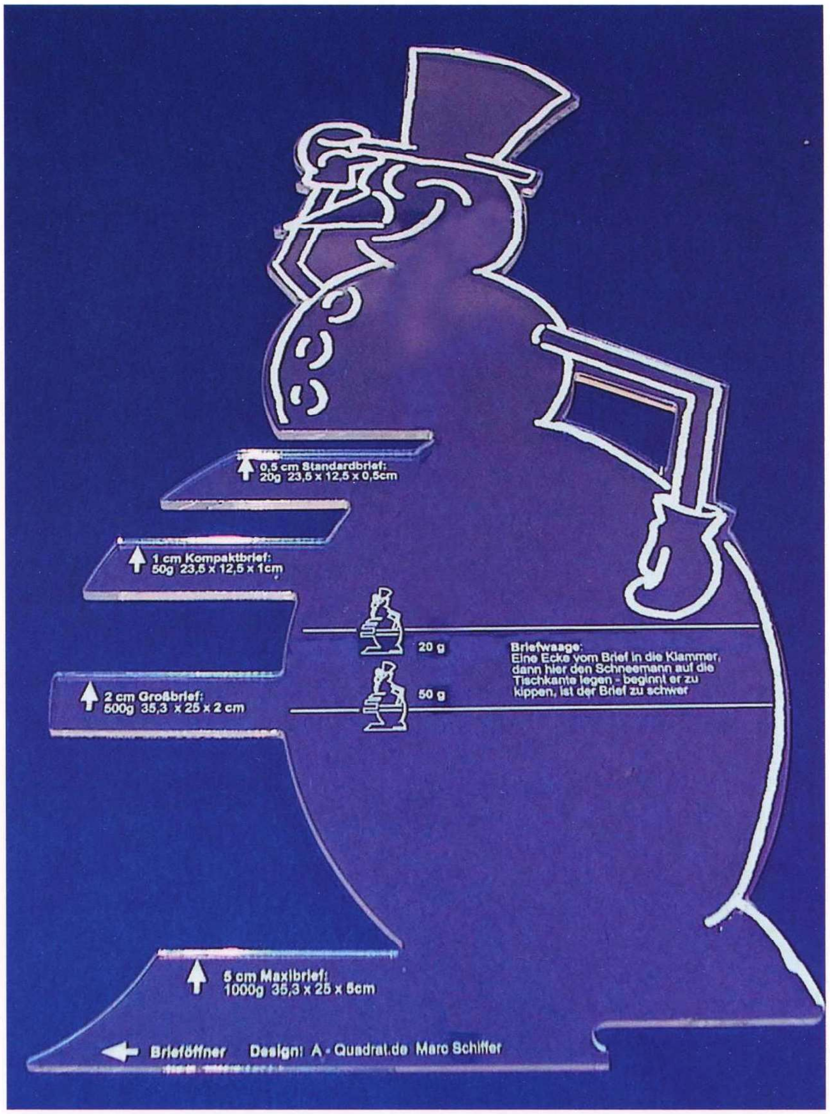
For an advertising product you could print on the penguin's surface on both sides. Because the penguin is very light and flat you can post it very cheap in Germany.

These scales were manufactured in white, translucent and yellow plastic. They measure 9 inches tall by 4¼ wide. A similar letter opener scale was manufactured in clear plastic in the shape of a snow man.



- BRIEFWAAGE
- BRIEFSCHABLONE
- BRIEFÖFFNER
POST - PINGUIN
50 g Kompaktbrief
BRIEFWAAGE:
Eine Ecke vom Brief in den Schnabel
20g Standardbrief
hier den Pinguin flach auf die Tischkante legen - beginnt er zu kippen, ist der Brief zu schwer
SCHABLONE für die Briefdicke
▲ Maxibrief: 1000g, 35,3 x 25 x 5 cm ▲
▲ Großbrief: 500g, 35,3 x 25 x 2 cm ▲
▼ Kompaktbrief: 50g, 23,5 x 12,5 x 1 cm ▼
▼ Standardbrief: 20g, 23,5 x 12,5 x 0,5 cm ▼
← BRIEFÖFFNER

Figure 91. ▲▲ The Post Penguin.



0,5 cm Standardbrief:
20g 23,5 x 12,5 x 0,5cm
1 cm Kompaktbrief:
50g 23,5 x 12,5 x 1cm
2 cm Großbrief:
500g 35,3 x 25 x 2 cm
20 g
50 g
Briefwaage:
Eine Ecke vom Brief in die Klammer, dann hier den Schneemann auf die Tischkante legen - beginnt er zu kippen, ist der Brief zu schwer
5 cm Maxibrief:
1000g 35,3 x 25 x 5cm
Brieföffner Design: A - Quadrat.de Marc Schiffer

Figure 92. ▲▲ The snowman letter opener scale measures 11¼ tall by 6¼ wide.

ISASC

EQUILIBRIUM

QUARTERLY MAGAZINE OF THE INTERNATIONAL SOCIETY OF ANTIQUE SCALE COLLECTORS

2019 ISSUE NO. 2

PAGES 4581 - 4608

Cover Picture

The unmarked postal scale on our cover is indicative of the work of Sampson Mordan. He was known for his use of cabochons and ten of the eleven malachite ones on this scale are surrounded by engraving and Mordan's signature spiral turned brass wire.

The scale is made of brass and may have been gilded when it was new. 8½" wide by 5" tall. Its base is $6^{3}/_{4}$" wide by $4^{7}/_{8}$" deep. The largest cabochon measures $1^{1}/_{8}$" in diameter. It is complete with four original weights marked 8p, 4p, 2p, and 1p, so dates between 1840 and 1865.

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INTERNATIONAL SOCIETY OF ANTIQUE SCALE COLLECTORS

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S Maw Son & Thompson

BY STEPHEN BARNETT

S Maw Son & Thompson Apothecary Scale Set

When is a boxed scale not a boxed scale? The answer is: When it is in a wooden tray that is part of an apothecary chest. We were wandering through an antiques show in Baltimore. One of the dealers had a scale in an open box that caught our attention. (Figure 1) While the scale itself was not very unusual, it was the scale and weights in this open tray with a spatula marked "S Maw Son & Thompson 7 to 12 Aldersgate St", (Figure 2) which made it interesting. What was it from? Who was S Maw Son & Thompson? What did they make? When were they in business? Once again we had the opportunity to add something different to our collection and about which to conduct research.

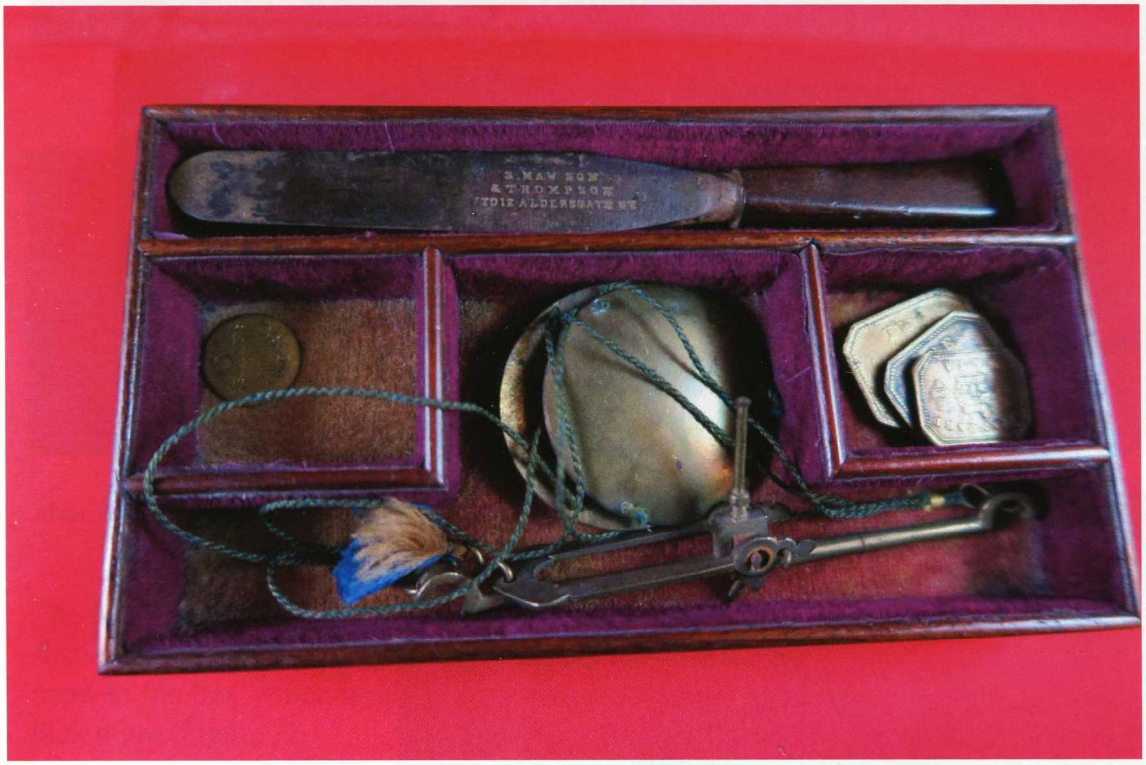
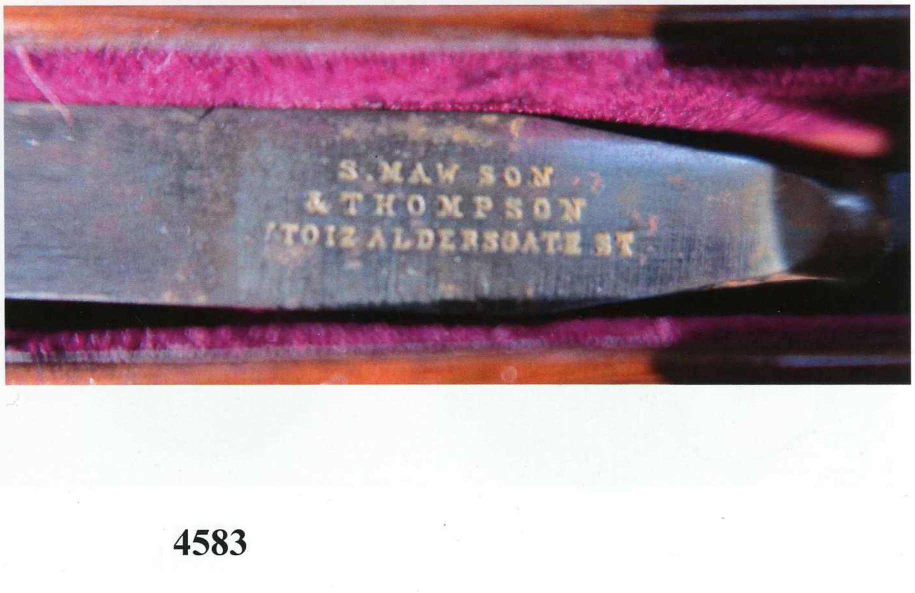


Figure 1. ≺≺ Apothecary scale tray with S Maw Son & Thompson spatula.

Figure 2. ≻≻ Detail of maker's stamp on spatula.



The tray, which is probably mahogany, is 5 ¼" wide, 3" deep and ¾" high. The compartments are lined with velvet, both on the bottom and on the sides. (Figure 3) The beam is 3 5/8" long, made of brass with swan neck ends. The round pans are brass and are 3" in diameter. There is no maker's mark on the beam or pans. (Figure 4)

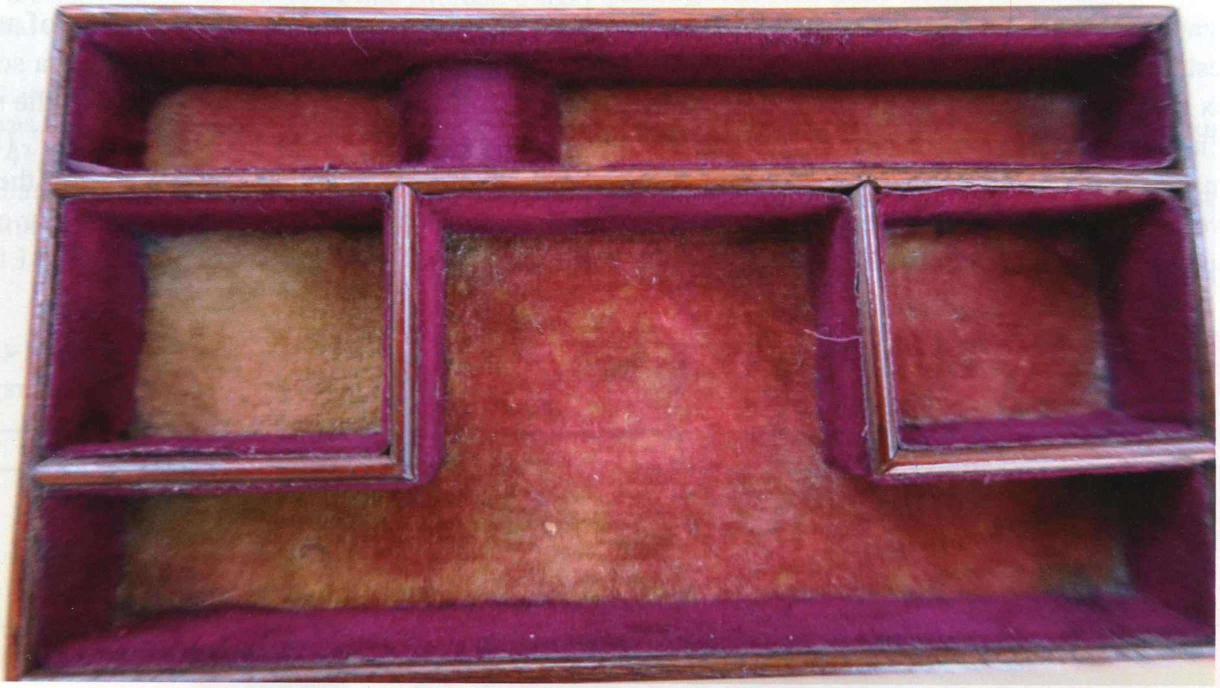


Figure 3. ▲▲ The tray has a velvet lining and is equipped with a hump to facilitate easy removal of the spatula.

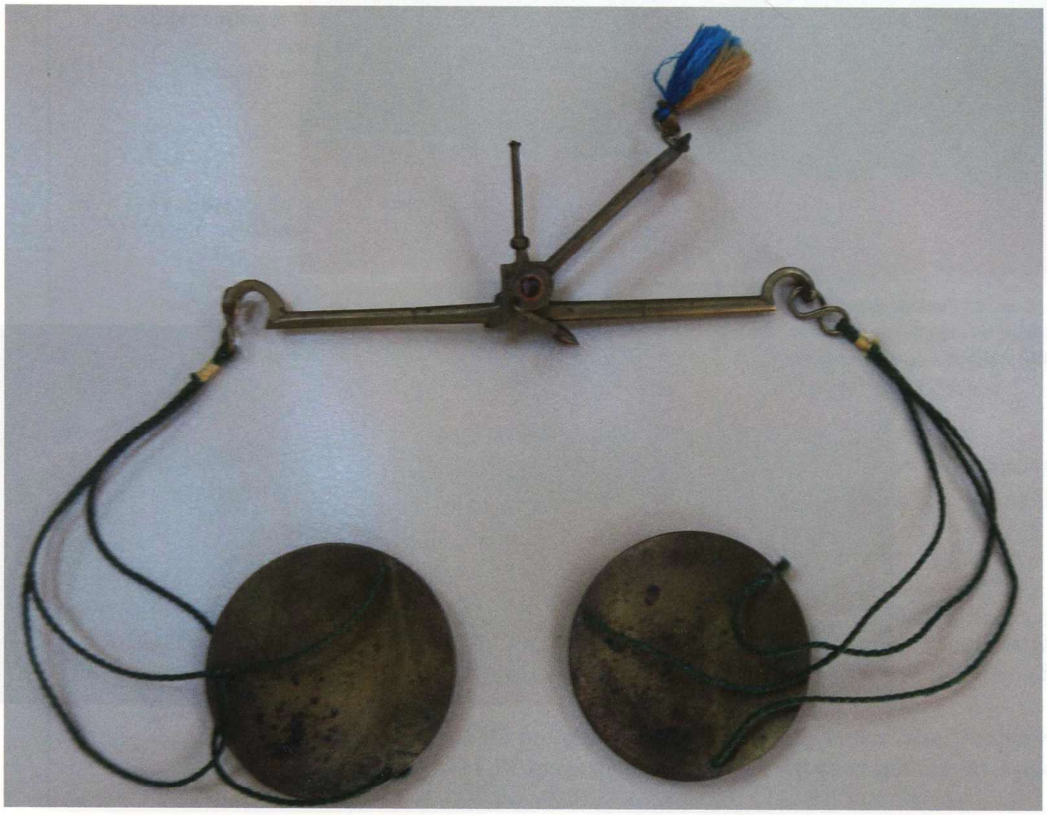


Figure 4. ◄◄ The brass scale and pans.

There are four weights in the set. (Figures 5 and 6) Three are Avery Standard brass apothecary lozenge weights, 2 dram, 1 dram and 2 scruples. The fourth is a round brass weight, marked on one side "6 GRAINS AVERY". We don't know if the scale was also made by Avery or if it is a marriage of a scale and Avery-made weights.

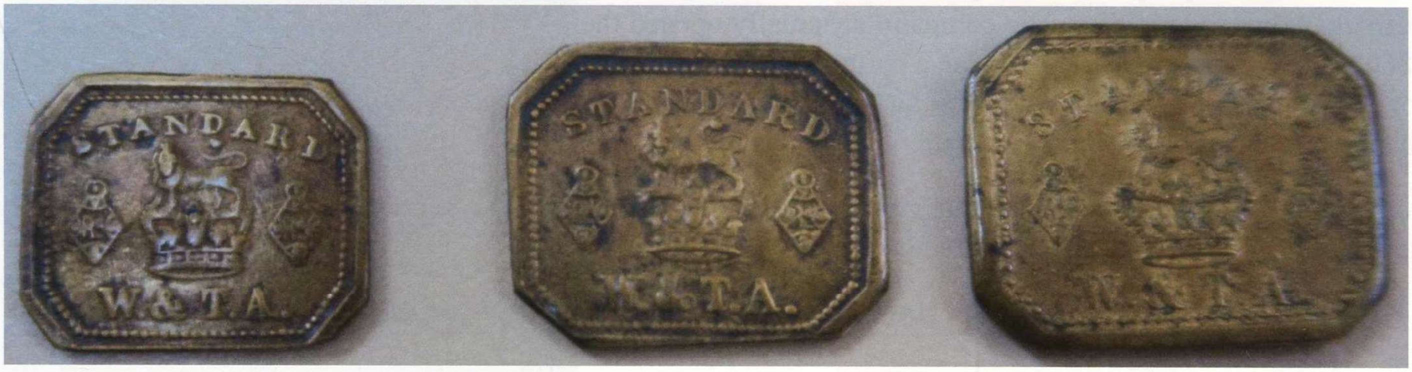


Figure 5. The three lozenge weights made by W & T Avery.

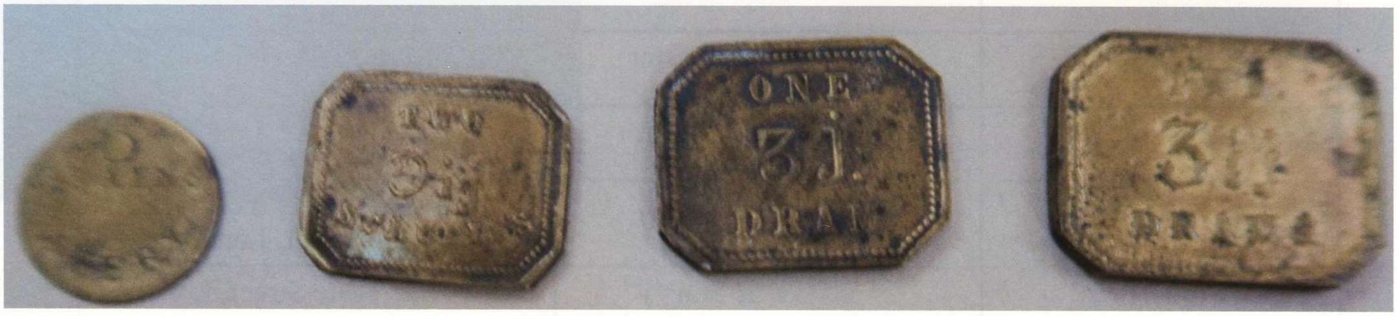


Figure 6. The four weights showing the denomination of each, with the round six grain Avery weight.

The handle of the spatula is also mahogany, and appears to be made from two pieces of wood of different shades of brown that are glued together. (Figure 7) It is 5" long, with a 3 ¼" inch steel blade. The compartment in the tray which holds it has a rounded hump in the bottom to make it easier to rock the spatula to pick it up. (Figure 3)

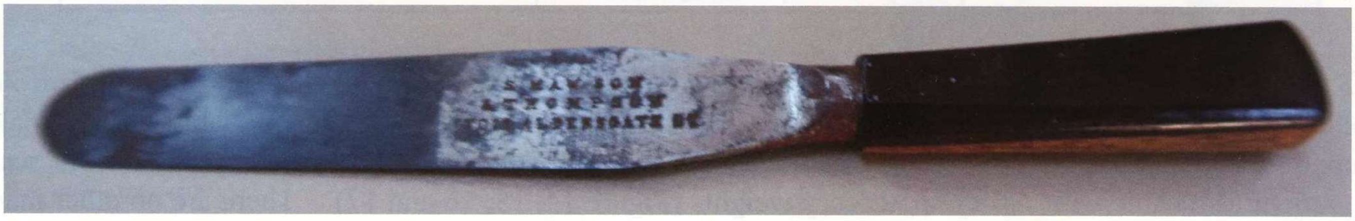


Figure 7. The spatula showing the two shades of wood on the handle.

S Maw Son & Thompson

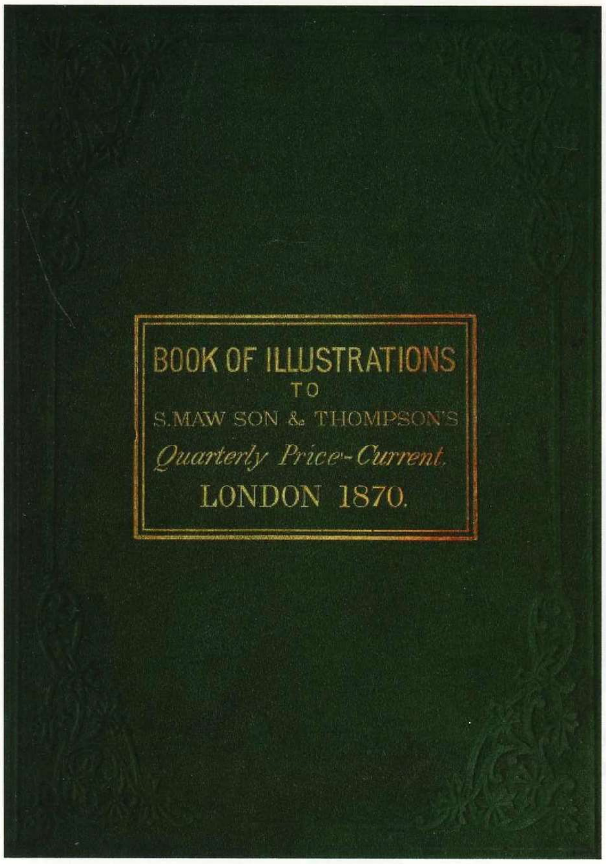
George Maw founded the company in 1807 in partnership with his cousin Hornby. They made and sold various types of medical supplies and equipment. His son John joined the partnership in 1826 at which time the business was renamed George Maw& Son. After George retired in 1828, Solomon, his second son, joined as a partner. The company was trading as J&S Maw starting in 1832. John retired in 1835. Under Solomon, the business expanded rapidly. The company eventually opened their shop at 7-12 Aldersgate Street, London. In 1860, Solomon's son Charles became a partner and the company began to use the title S Maw & Son. In 1870, John Thompson was made a partner and the company was named S Maw Son and Thompson. The next change of name took place in 1901, after Thompson retired[1].

For ease of reference, Table 1 summarizes the dates, company names and locations between 1807 when it was started and 1973, when it was acquired by ITT Inc.

TABLE 1: SUMMARY OF DATES, NAMES AND ADDRESSES ASSOCIATED WITH THE MAW FAMILY

DATES	COMPANY NAME	LOCATION
1807-1814	Hornby & Maw	Fenchurch Street London
1814-1826	Maw Surgical Plaster	Whitecross Street, London
1826-1832	George Maw & Son	Aldermanbury, London
1832-1860	J&S Maw	11 Aldersgate Street then 7-12 Aldersgate Street, London[2]
1860-1870	S Maw & Son	7-12 Aldersgate Street, London
1870-1901	S Maw Son & Thompson	7-12 Aldersgate Street, London
1901-1940	S Maw, Son & Sons Ltd	7-12 Aldersgate Street, London (until 1918 (?)), then at Monken Hadley, Barnet
1940-1959	Maws Pharmacy Supplies Ltd	Monken Hadley, Barnet
1959-1974	S Maw Son & Sons Ltd which was acquired by ITT	Monken Hadley, Barnet

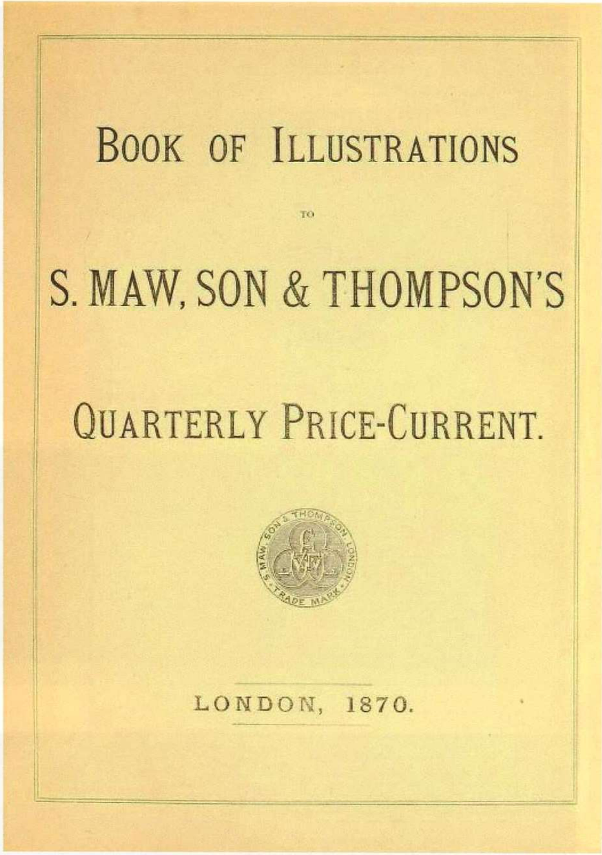
The *S. Maw, Son & Thompson's 1870 Book of Illustrations.* (Figures 8, 9 and 10)[3] lists the variety of medical supplies and equipment that they made and sold. It includes scales that they sold (probably did not make) (Figure 11). They made (or sold under their label) a Béranger scale (Figures 12 and 13) and a beam scale. Like ours, it also came with Avery apothecary weights (Figure 14, 15, 16 and 17)[4]. There are no other markings related to the maker of this scale. On the web, I found another example of a similar beam scale with the Maw label in the base. However, the scale itself has Stevens & Son Goswell Road[5] stamped on the shears. According to the *Crawforth Index*, Charles Stevens and his son William had shops on Goswell Road starting in 1883. Goswell Road is an extension of Aldersgate Street. The two companies were contemporaries. Thus, it is not surprising that Maw bought scales from Stevens and added his label to the base. The *Crawforth Index* also contains five entries about the Maw family, and scales and addresses associated with them.



BOOK OF ILLUSTRATIONS
TO
S.MAW SON & THOMPSON'S
Quarterly Price-Current.
LONDON 1870.

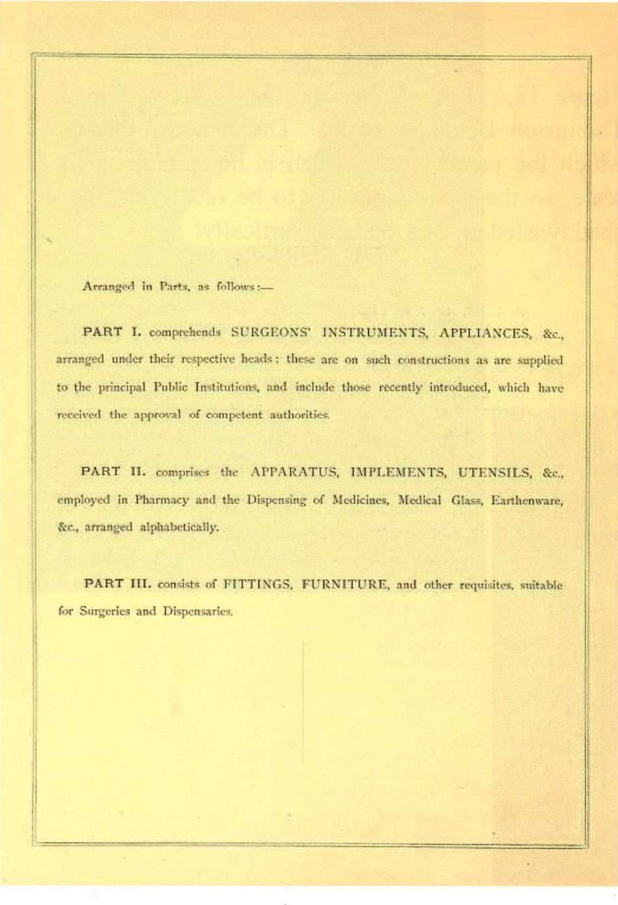
Figure 8. ≺≺ Leather bound *S. Maw, Son & Thompson's 1870 Book of Illustrations.*

Figure 9. ≻≻ Printed title page for the *S. Maw, Son & Thompson's 1870 Book of Illustrations.*



BOOK OF ILLUSTRATIONS
TO
S. MAW, SON & THOMPSON'S
QUARTERLY PRICE-CURRENT.

LONDON, 1870.



Arranged in Parts, as follows:—

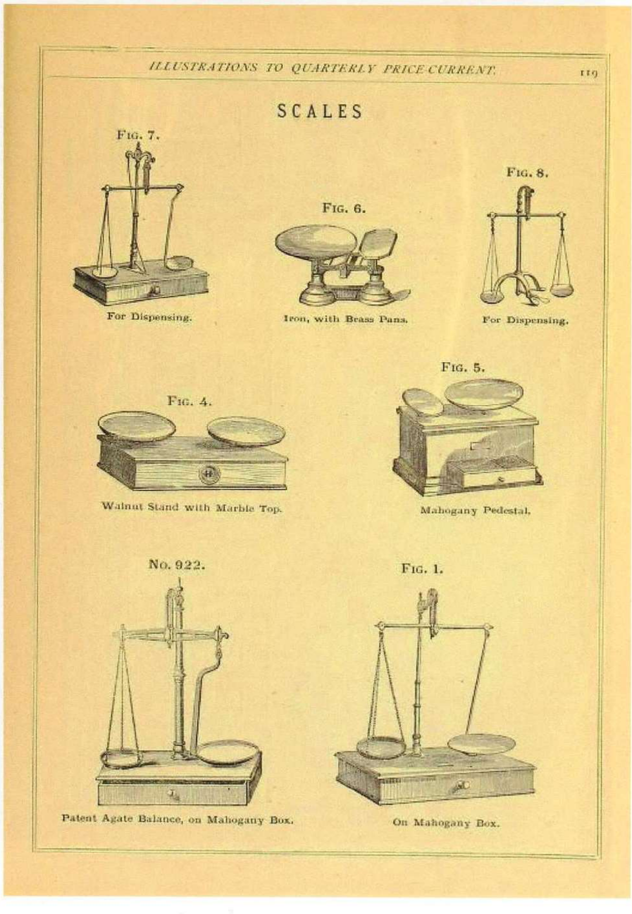
PART I. comprehends SURGEONS' INSTRUMENTS, APPLIANCES, &c., arranged under their respective heads: these are on such constructions as are supplied to the principal Public Institutions, and include those recently introduced, which have received the approval of competent authorities.

PART II. comprises the APPARATUS, IMPLEMENTS, UTENSILS, &c., employed in Pharmacy and the Dispensing of Medicines, Medical Glass, Earthenware, &c., arranged alphabetically.

PART III. consists of FITTINGS, FURNITURE, and other requisites, suitable for Surgeries and Dispensaries.

Figure 10. ≺≺ Contents page for the *S Maw, Son & Thompson's 1870 Book of Illustrations.*

Figure 11. ≻≻ Scales in the *S. Maw, Son & Thompson's 1870 Book of Illustrations.*



ILLUSTRATIONS TO QUARTERLY PRICE-CURRENT. 119

SCALES

FIG. 7. For Dispensing.

FIG. 6. Iron, with Brass Pans.

FIG. 8. For Dispensing.

FIG. 4. Walnut Stand with Marble Top.

FIG. 5. Mahogany Pedestal.

NO. 922. Patent Agate Balance, on Mahogany Box.

FIG. 1. On Mahogany Box.

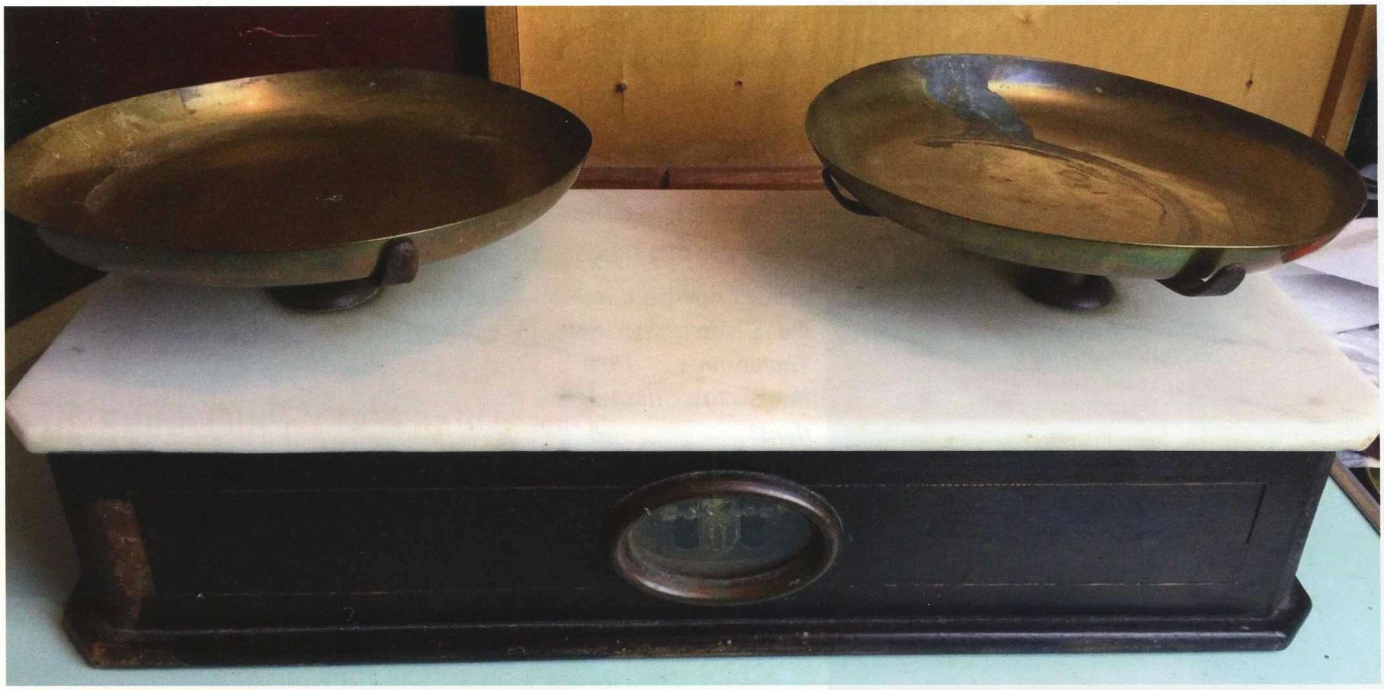


Figure 12. ⮝⮝ S Maw, Son & Thompson Béranger scale.

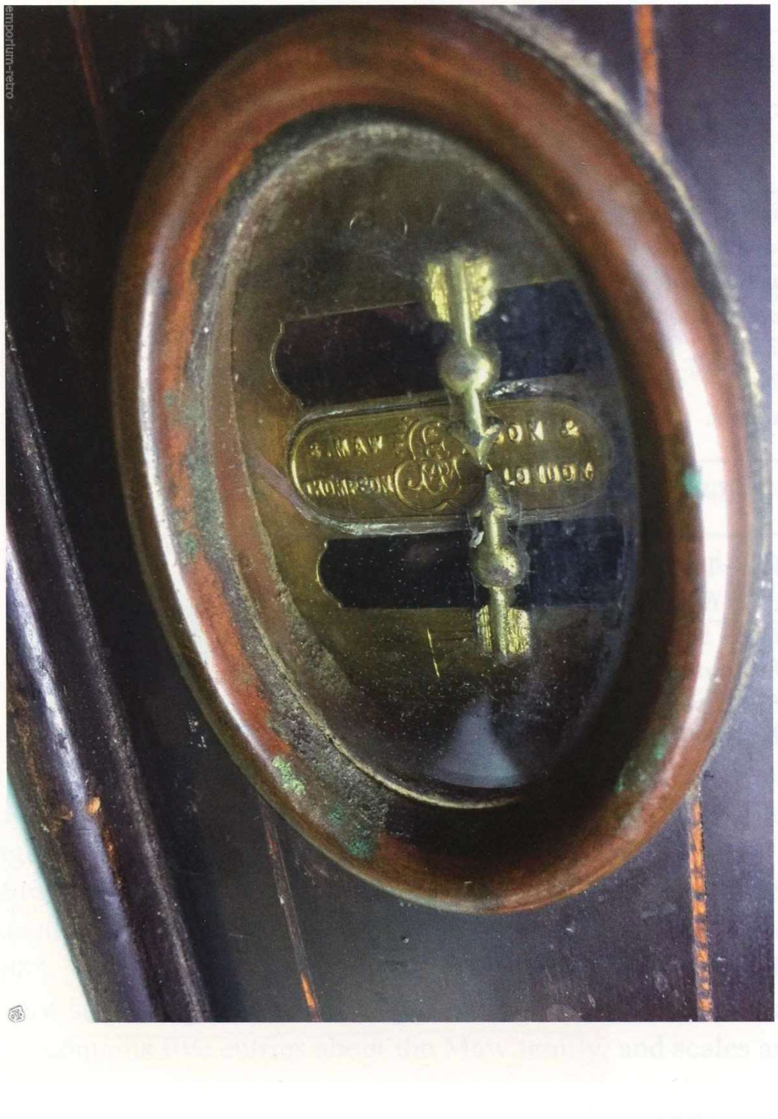


Figure 13. ⮜⮜ Label for the S Maw, Son & Thompson Béranger scale. The window through which the name label is seen is horizontal on the scale, so the name label has to be read with one's head twisted to read the label vertically!

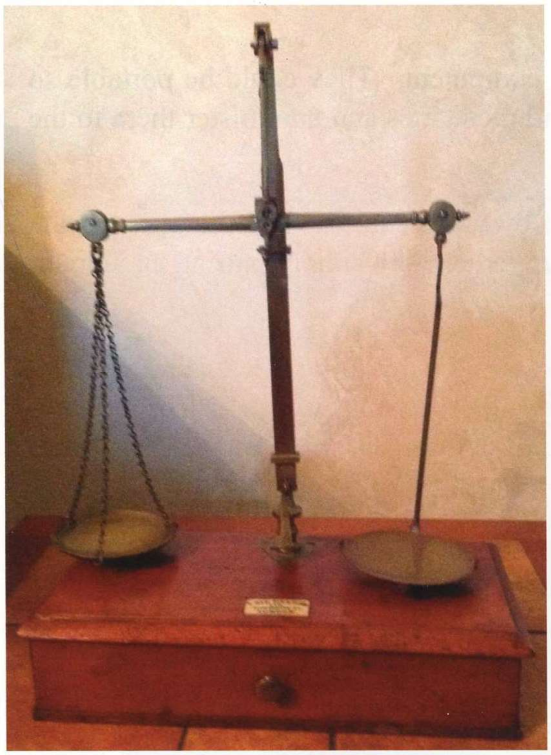
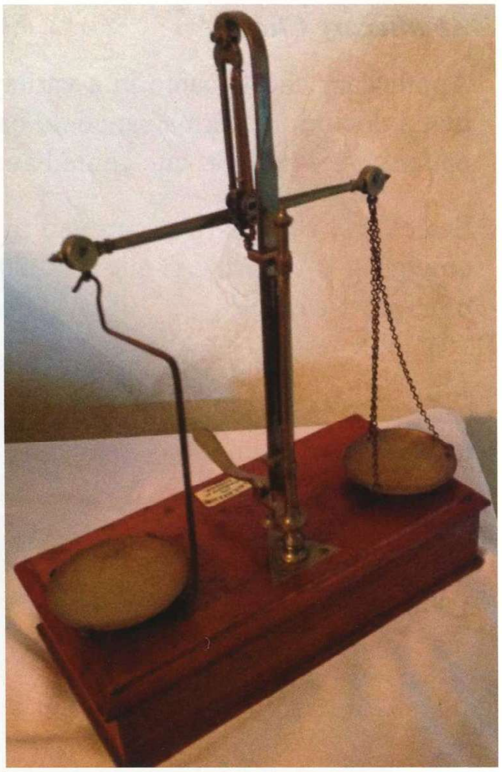


Figure 14. ≺≺ S. Maw, Son & Sons, Ltd. beam scale.

Figure 15. ≻≻ Rear view of beam scale.



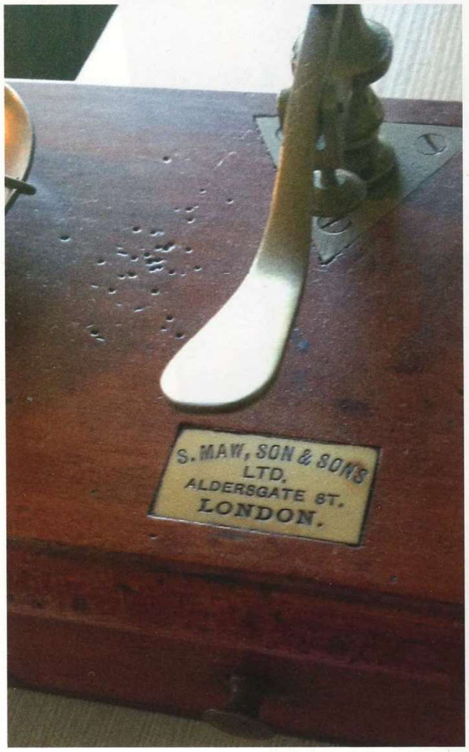
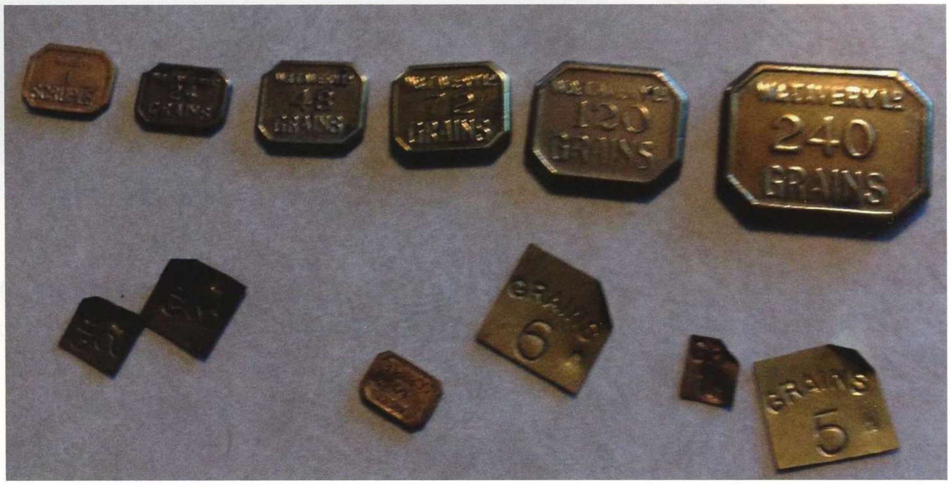


Figure 16. ≺≺ Label on S. Maw, Son & Sons Ltd. equal-arm scale with lever lift..

Figure 17. ⋎⋎ Set of Avery apothecary weights with the beam scale.

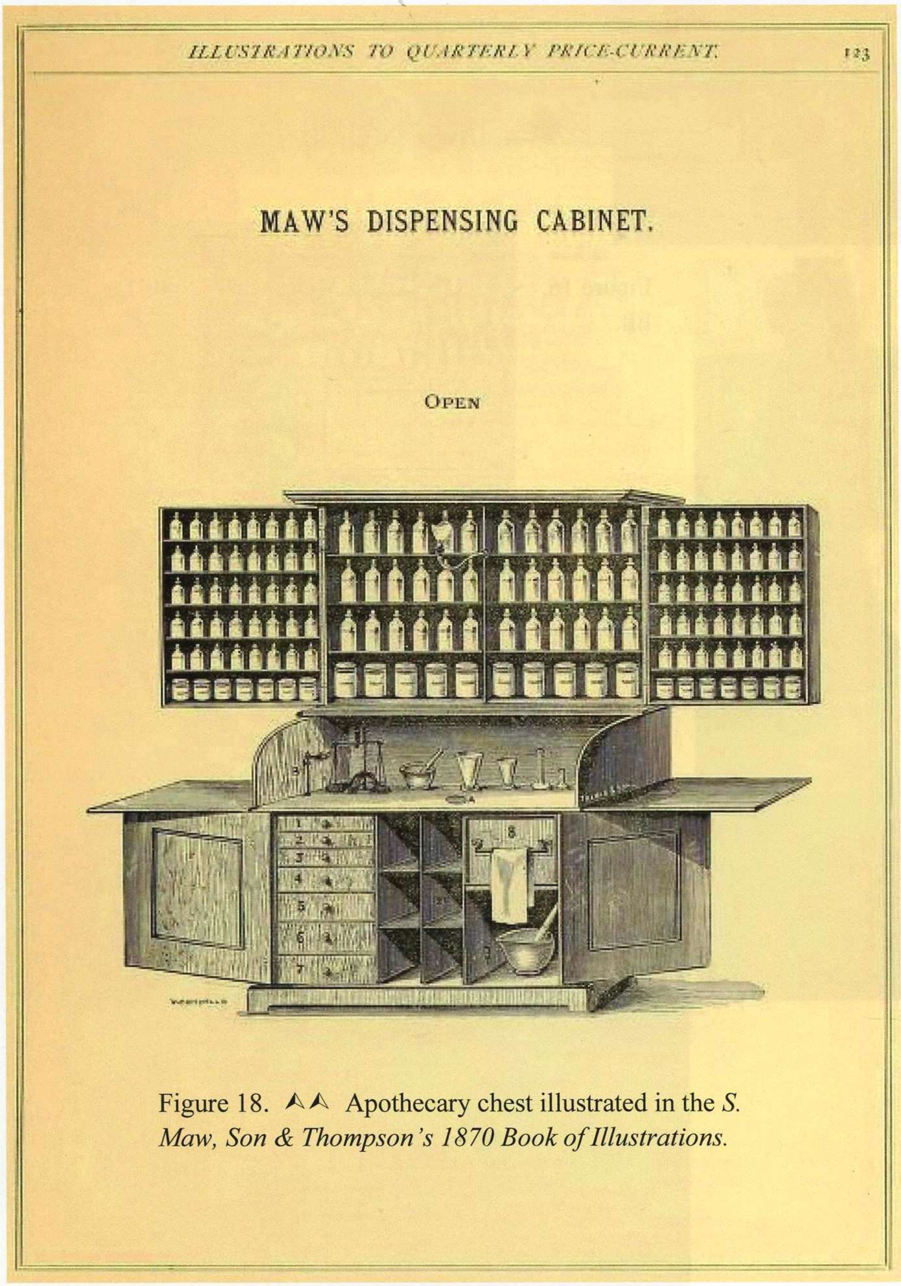


Apothecary Chests

Apothecary chests came in a variety of sizes, styles, wood and equipment. They could be portable so that a doctor or pharmacist could carry it with them to compound medicines and administer them to the patient. A wealthy estate could have one of its own.

Scales and weights were needed to measure the correct amount by weight of the ingredients. A scale could also be used to create a 50/50 by weight mixture of two ingredients by simply putting an amount of each on each pan until the scale balances.

The *S Maw Son & Thompson 1870 Book of Illustrations* contains an illustration of one of their apothecary cases (Figure 18). Figures 19, 20, 21 and 22 show the details of an elegant English 18th or 19th century apothecary chest[6]. Note the scales and weights in the tray in the lower left of Figure 21 and detail in figure 22.



ILLUSTRATIONS TO QUARTERLY PRICE-CURRENT. 123

MAW'S DISPENSING CABINET.

OPEN

Figure 18. ▲▲ Apothecary chest illustrated in the *S. Maw, Son & Thompson's 1870 Book of Illustrations.*

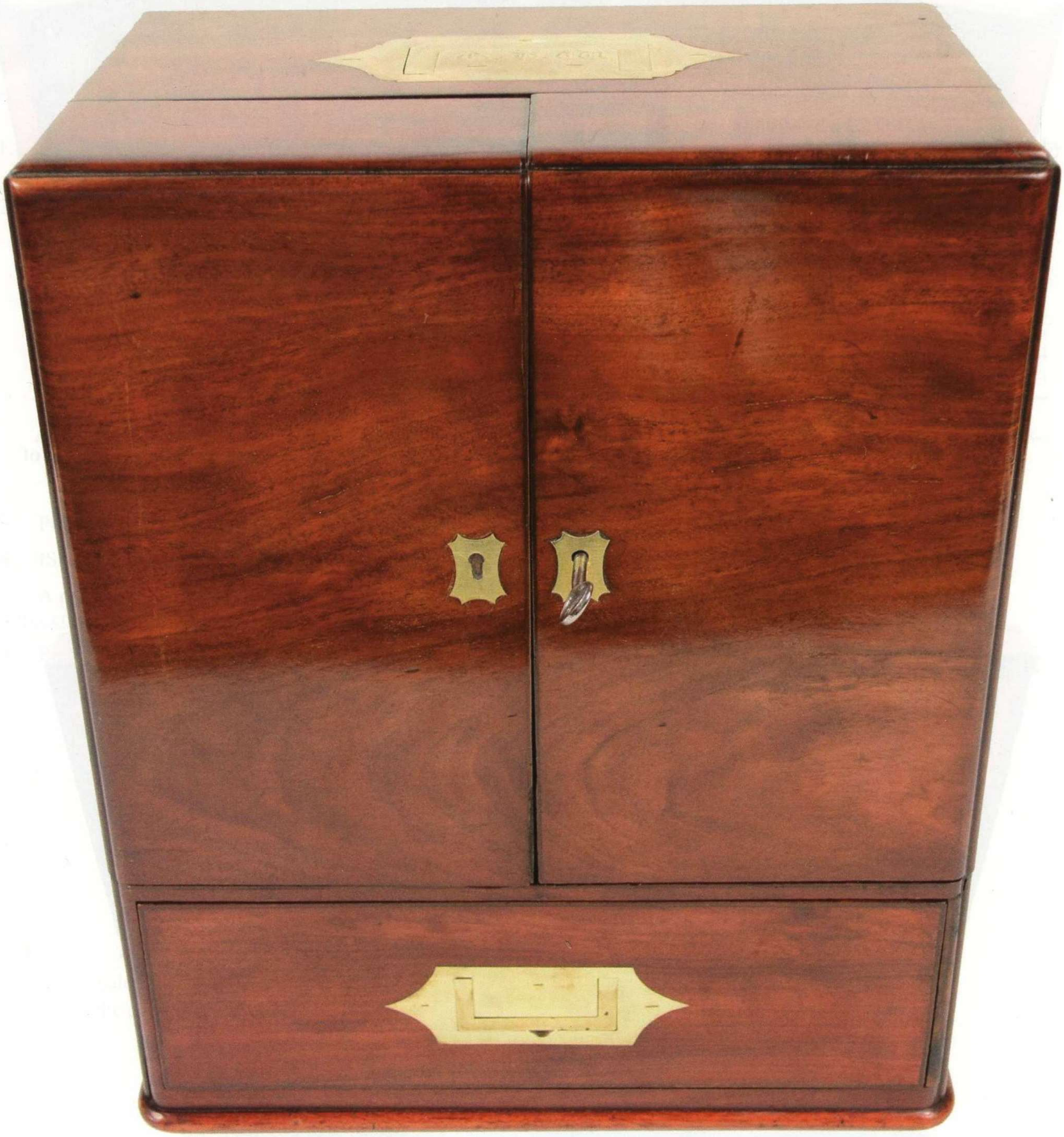


Figure 19. ▲▲ Closed front view of an elegant 19th Century apothecary chest.

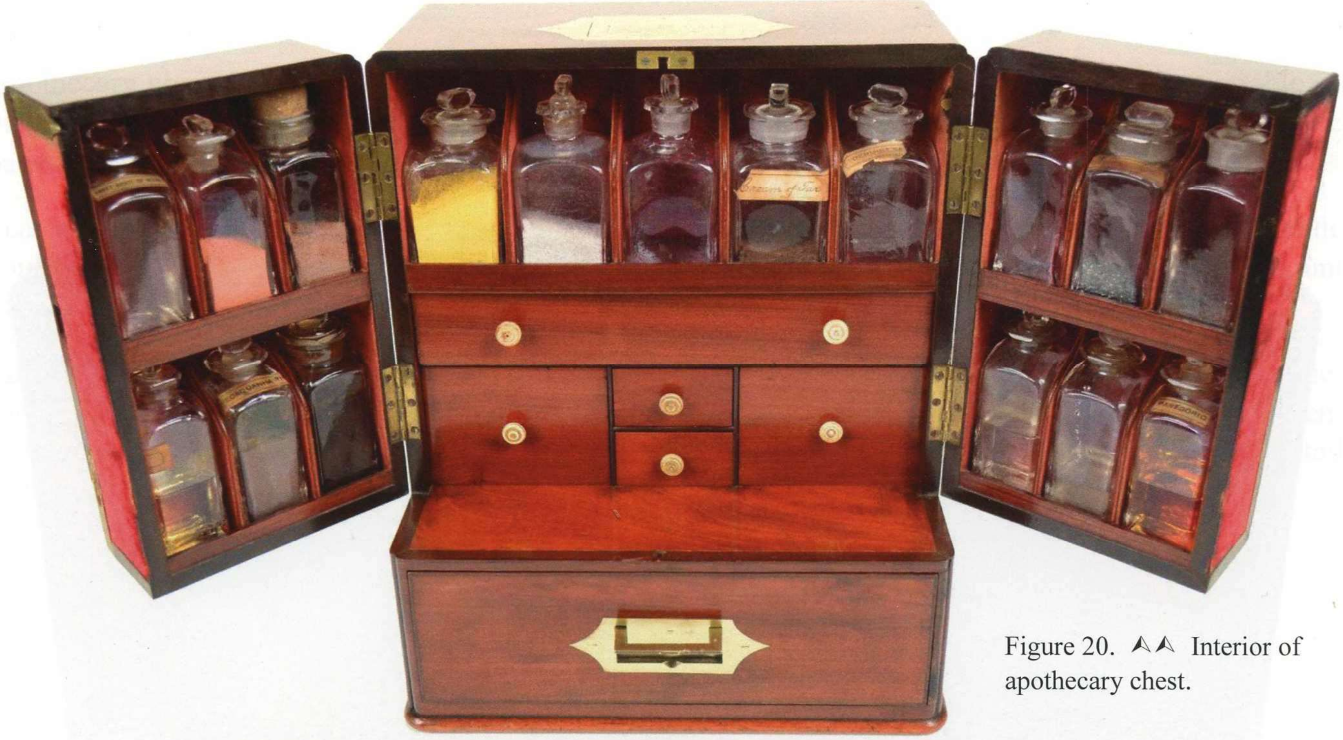


Figure 20. ⩓⩓ Interior of apothecary chest.

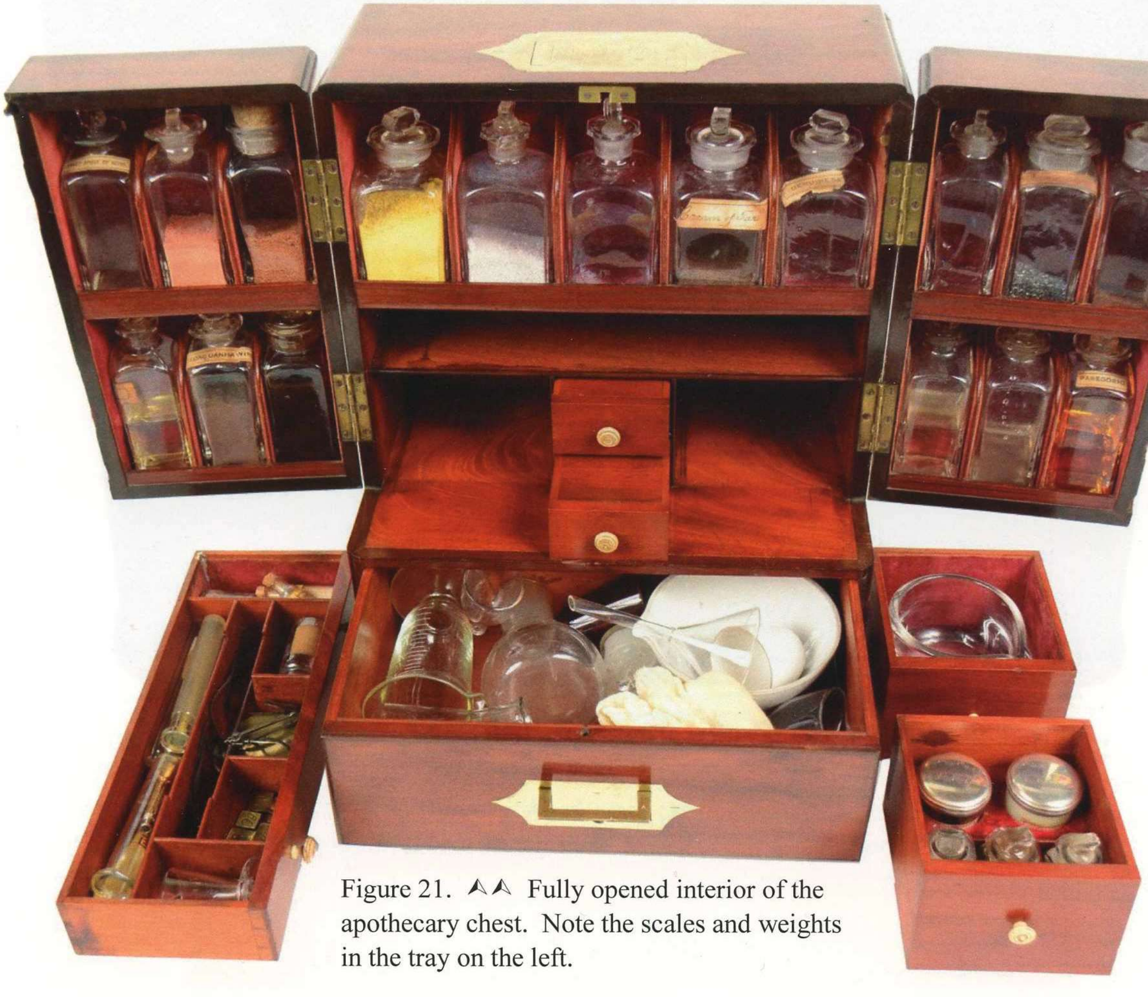


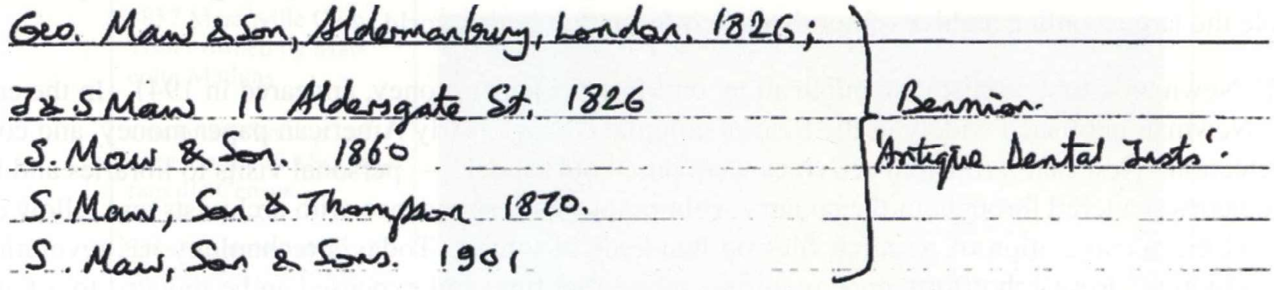
Figure 21. ⩓⩓ Fully opened interior of the apothecary chest. Note the scales and weights in the tray on the left.

Results of our investigation

Based on the business address on it, the spatula in our set was made between 1870 and 1901. We don't know if this set is from an apothecary chest that S Maw Son & Thompson made, or if another maker of apothecary chests used the scale, weights and the spatula obtained from other makers. In this case, Avery provided the scale and weights, and S. Maw Son & Thompson provided the spatula.

Notes & References

1. A full history of the company can be found in *The Pharmaceutical Industry: A Guide to Historical Records*, edited by Lesley Richmond, et al.
2. The Crawforth Index entry for Maw has the following address information for the early locations:



Geo. Maw & Son, Aldermanbury, London. 1826;
J & S Maw 11 Aldersgate St. 1826
S. Maw & Son. 1860
S. Maw, Son & Thompson 1870.
S. Maw, Son & Sons. 1901

Bennion.
'Antique Dental Insts'.

3. Pictures are from a digitized copy of the book and are used courtesy of the Medical Heritage Library
4. ISASC member Mary Easton graciously provided these pictures of her S Maw Son &Thompson beam scale.
5. A picture of the Steven's & Son label on an S Maw Son & Thompson beam scale can be viewed at http://collectingme.com/Measuring/Apothecary_Chemical_Balance_Scale/5.jpg
6. Pictures provided courtesy of 1stdibs (https://www.1stdibs.com)

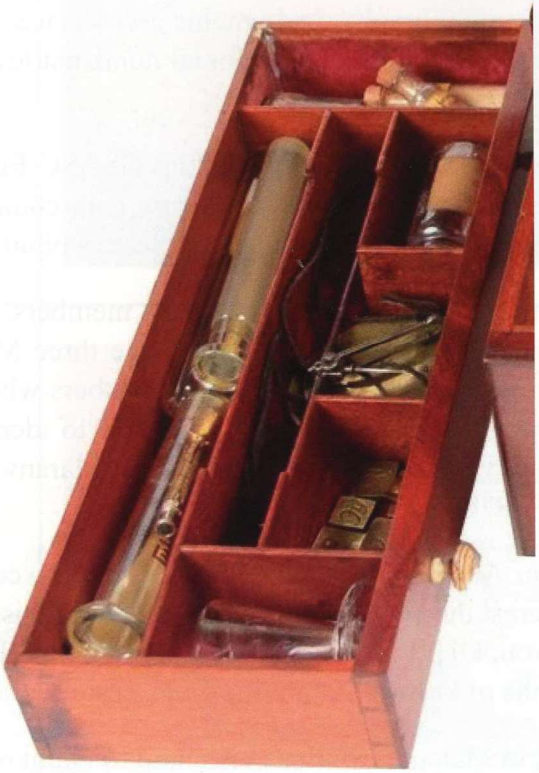


Figure 22. ➢➢ Detail showing how the scales and weights are stored in the apothecary chest.

Inaugural Newman Grant Awarded

BY MALCOLM MATHIAS

Malcolm Mathias (ISASC Europe member) has been awarded one of the eight inaugural Newman Grants to continue his research into the three Maranville Coin Testers (1857, 1860 and 1878 counterfeit coin detectors).

The Eric P. Newman Numismatic Education Society (EPNNES) is based at the Washington University in St Louis, Missouri. EPNNES have now created the Newman Numismatic Portal, a digital library which will provide the largest online archive of numismatic information in the world.

Eric P. Newman's first numismatic publication, on Missouri paper money, appeared in 1941. In the ensuing years, Newman published widely in the field of colonial coinage, early American paper money, and counterfeit detection. Newman's research activities were pure "old school" — personal visits to libraries and historical societies scattered throughout the country, voluminous correspondence with archivists and fellow collectors, and the accumulation of research files on hundreds of topics. Today's technology has revolutionized these activities. Research efforts once requiring substantial time and expense can be reduced to a few keystrokes. The Newman Numismatic Portal will extend the Newman legacy of scholarly research by making freely available the largest online archive of numismatic information in the world.

In January, the Eric P. Newman Numismatic Education Society (EPNNES) announced the creation of the Newman Grant program to financially assist numismatic authors and organizations pursuing original research in American numismatics. The first set of Newman Grants was announced on May 25, 2019, date of the late Eric P. Newman's birthday.

Newman Grants will be awarded annually and are intended to assist with direct costs of numismatic research including, but not limited to travel, photography, and graphic arts services. Eight awards are being made this year, to promote research in several areas, including colonial numismatics, U.S. federal coinage, paper money, medals, and counterfeit detection.

The 2019 Newman Grant awardees include Malcolm Mathias (ISASC Europe member), who will be creating a census of Harvey Maranville coin testers, a 19th century coin counterfeit detection device. Malcolm Mathias will travel extensively to view these rare pieces and create a photographic record.

ISASC contacted members in January 2019, asking members to contact Malcolm Mathias (mathias.m.h@bigpond.com) if they owned one or more of the three Maranville Coin Testers. Malcolm would like to express a very big thank you to all the ISASC members who contacted him, telling him about the Maranvilles in their collections. Malcolm has now been able to identify 35 surviving examples of the 1857 Maranville Coin Tester; 6 surviving examples of the 1860 Maranville Improved Pocket Coin Tester; and 28 surviving examples of the 1878 Dial Coin Tester.

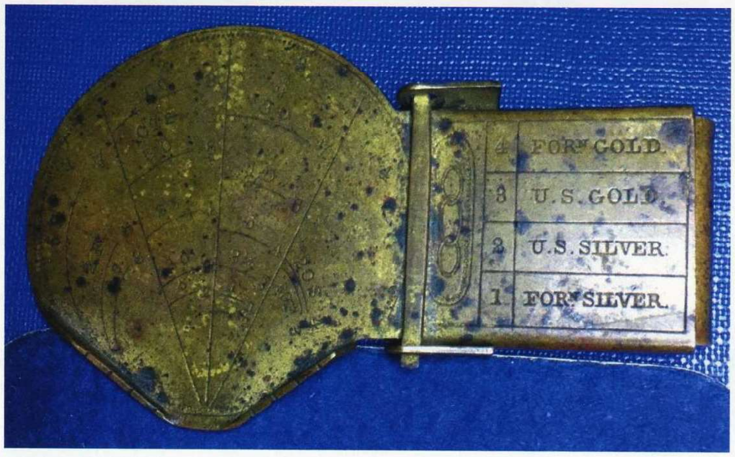
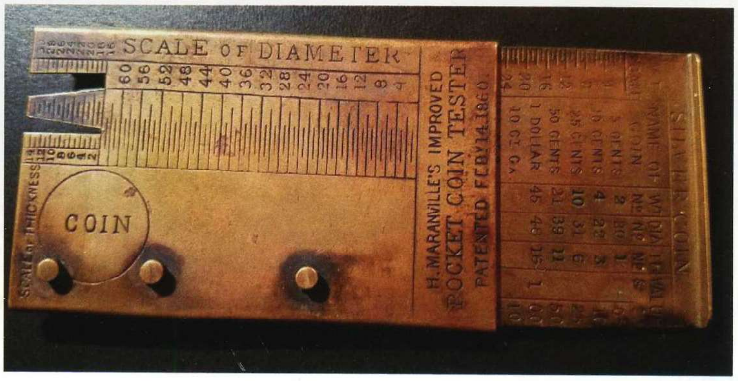
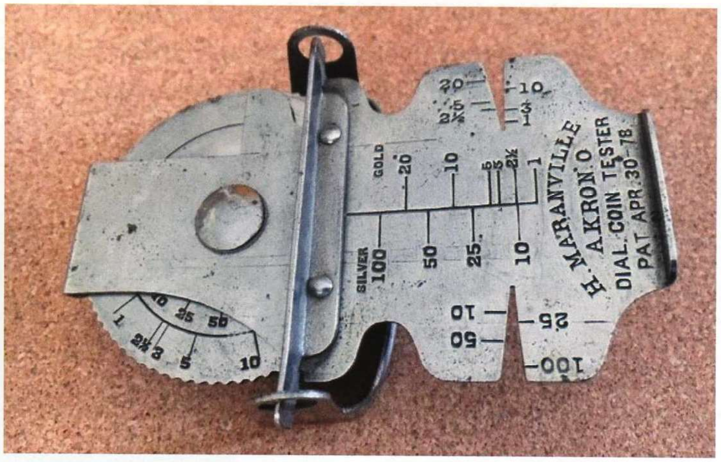
Malcolm now plans to travel from Australia to USA to visit collectors, collections, libraries, museums, historical societies and places of interest during September 2019. He will visit San Francisco, CA; Chicago, IL; Pittsburgh, PA; Clinton, OH; Akron, OH; Philadelphia, PA; Washington, DC; and Worcester, MA; gathering information and taking photographs of known Maranville Coin Testers.

Please send your responses direct to Malcolm Mathias via email to mathias.m.h@bigpond.com

Malcolm would still like to hear from any ISASC member who has not previously identified their ownership of any of the three Maranville Coin Testers. Digital photographs of the front and back of each Maranville Coin Tester will help make the Maranville Census as accurate as possible.

Note: EPNNES initiated contact with Malcolm after an unknown ISASC member alerted EPNNES to the original ISASC email of January 2019 which was sent to all ISASC members. Malcolm was quite unaware of EPNNES and surprised to receive the subsequent EPNNES correspondence which led to Malcolm's grant application. Malcolm wishes to thank that unknown ISASC member very much.

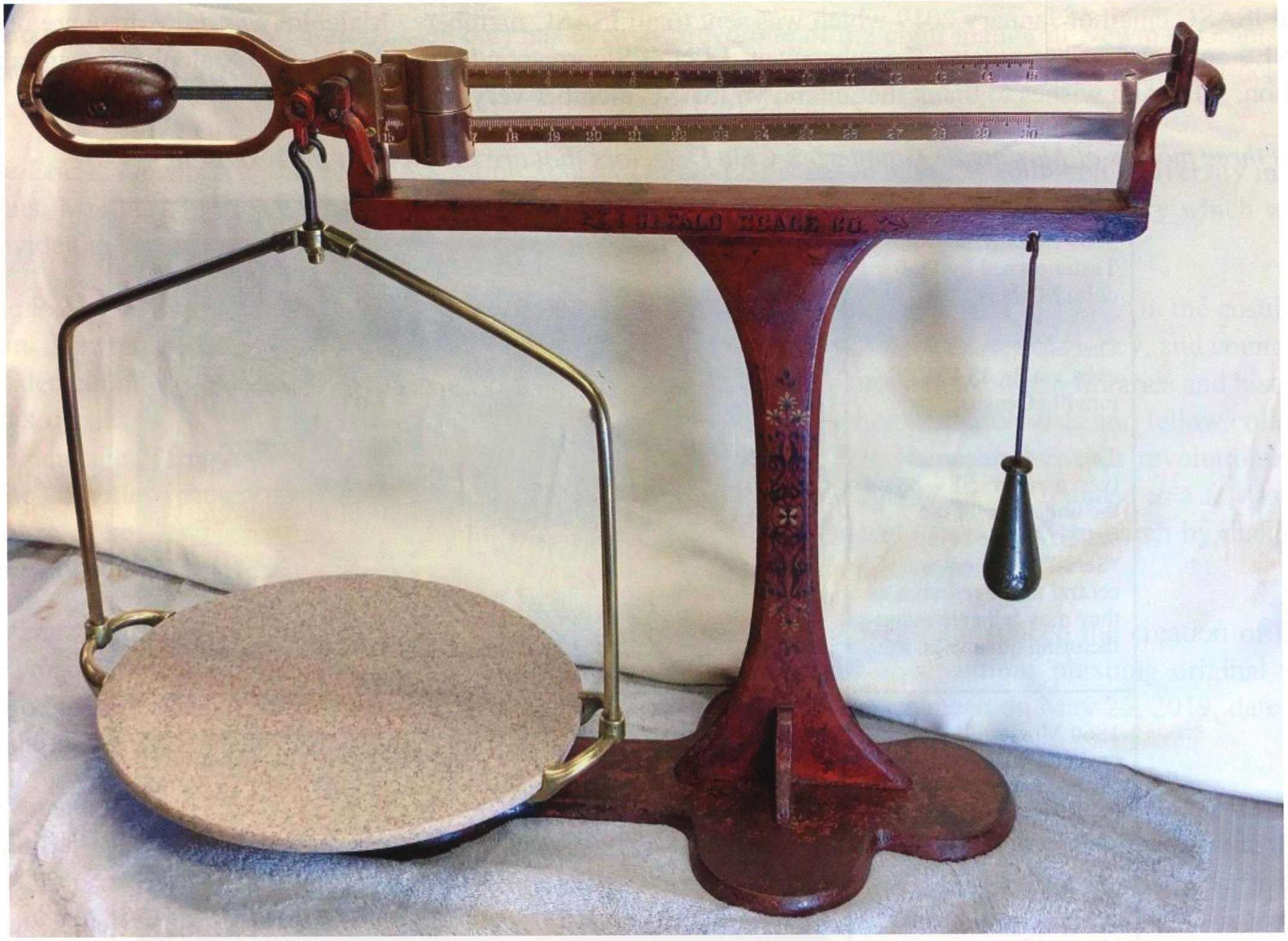
The three models of Maranville Counterfeit Coin Detectors that are the focus of the research.

1857 Maranville Coin Tester owned by Malcolm Mathias One of 35 "known" to exist via the ISASC Maranville Census. This example carries twin numbers 88 – 88 on the underside of the scales. These twin "Serial" numbers are central to the research as they may indicate manufacturing quantities.	 4 FOR^N GOLD 3 U.S. GOLD 2 U.S. SILVER 1 FOR^N SILVER
1860 Maranville Improved Pocket Coin Tester owned by an ISASC member in San Francisco. One of only six "known" to exist via the ISASC Maranville Census. There are two different versions of this sample (?) model. One shows a Manufacturer's name.	 SCALE OF DIAMETER SCALE OF THICKNESS COIN H. MARANVILLE'S IMPROVED POCKET COIN TESTER PATENTED FEB. 14 1860
1878 Maranville Dial Coin Tester owned by Malcolm Mathias One of 29 "known" to exist via the ISASC Maranville Census. There are no "known" serial numbers on this model making estimates of quantities manufactured more difficult than the 1857.	 H. MARANVILLE AKRON, O DIAL COIN TESTER PAT. APR. 30 -78 GOLD SILVER

From the Collection of

BY GREGG MOTTER

1880 Boston Market Scale
Buffalo Scale Company, Buffalo, New York



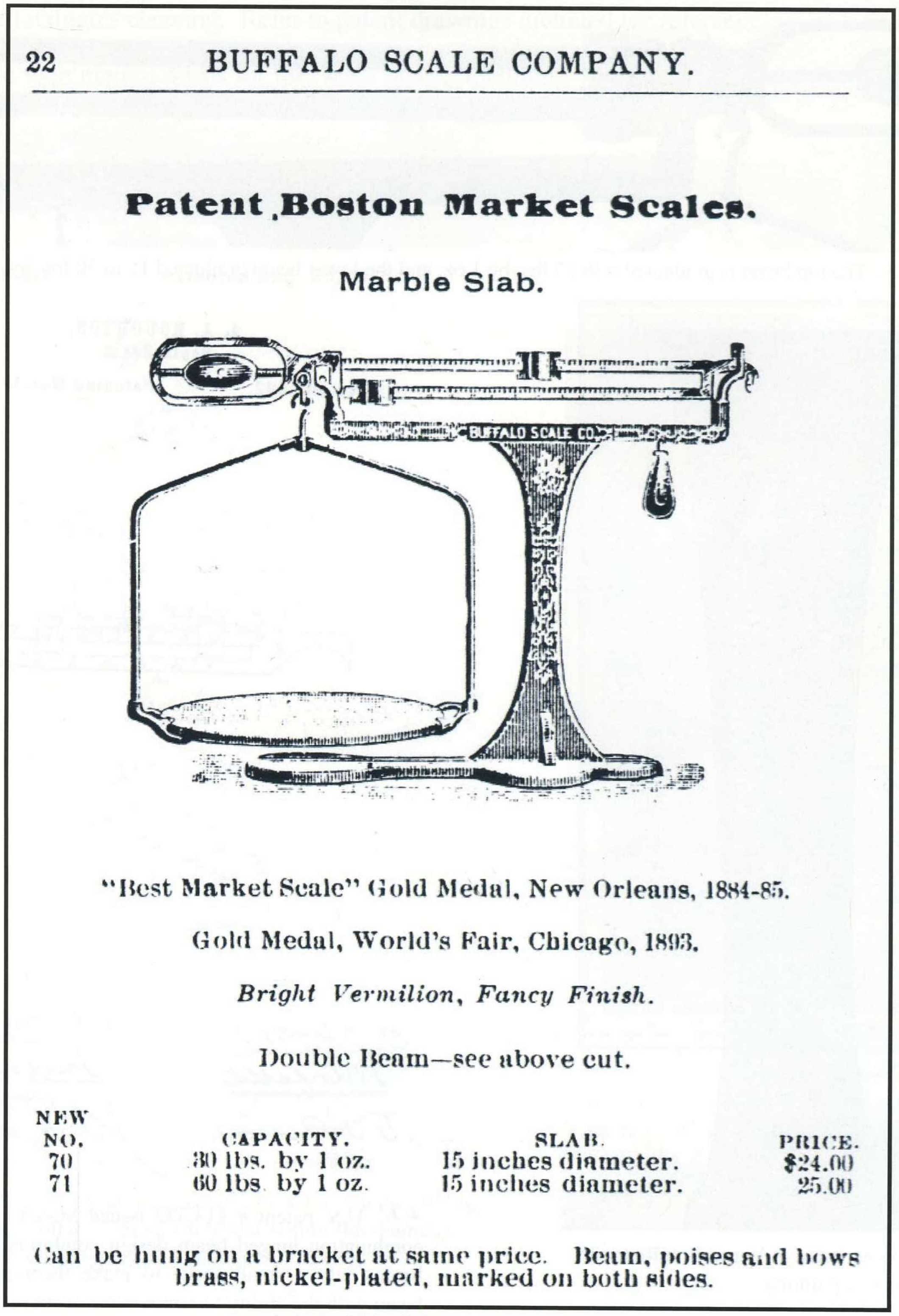
Boston Market Scales were designed for weighing salted meat, fish, butter, or anything else containing high levels of salt or moisture that would corrode conventional scale bearings that were at, or below, the weighing surface. [The original marble plate was missing and has been replaced with one of a different material.]

Buffalo Scale Company offered this scale in three versions:

- 30 Lbs. by 1 Oz. as Model #70, 1894 Telegraph order code: Gunnel
- 60 Lbs. by 1 Oz. as Model #71, 1894 Telegraph order code: Gunshot
- Optional bracket to wall mount either of the above options

ᐱᐱ Hand applied drop shadow block lettering for the company name.

Refer to 1894 Buffalo Scale catalog page below. All versions came highly decorated in Vermillion Red paint with hand applied drop shadow block lettering for the company name and very intricate tole painting. Scale base consists of three pieces of cast iron bolted together with dual, robust solid brass beams. All total, scale weights 90 lbs.! This scale requires a very large display space measuring 24 inches high by 32 inches wide.



Patent Boston Market Scales.

Marble Slab.

BUFFALO SCALE CO.

"Best Market Scale" Gold Medal, New Orleans, 1884-85.

Gold Medal, World's Fair, Chicago, 1893.

Bright Vermilion, Fancy Finish.

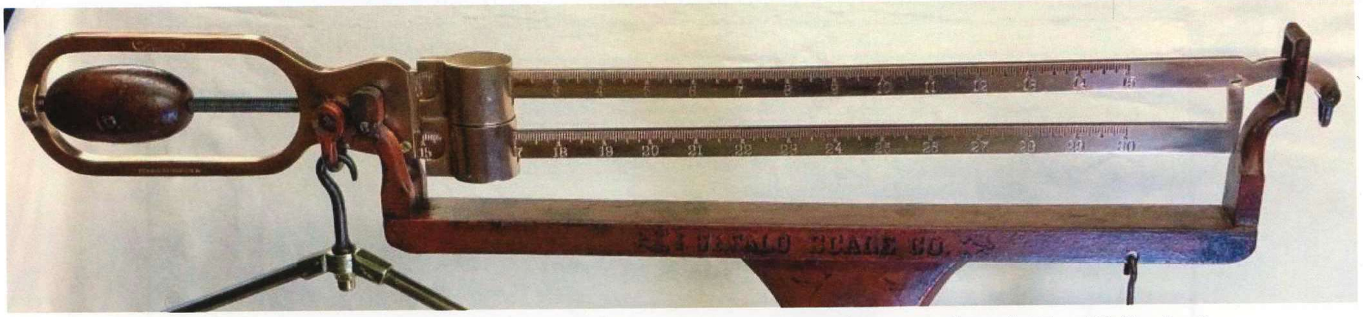
Double Beam—see above cut.

NEW NO.	CAPACITY.	SLAB.	PRICE.
70	30 lbs. by 1 oz.	15 inches diameter.	$24.00
71	60 lbs. by 1 oz.	15 inches diameter.	25.00

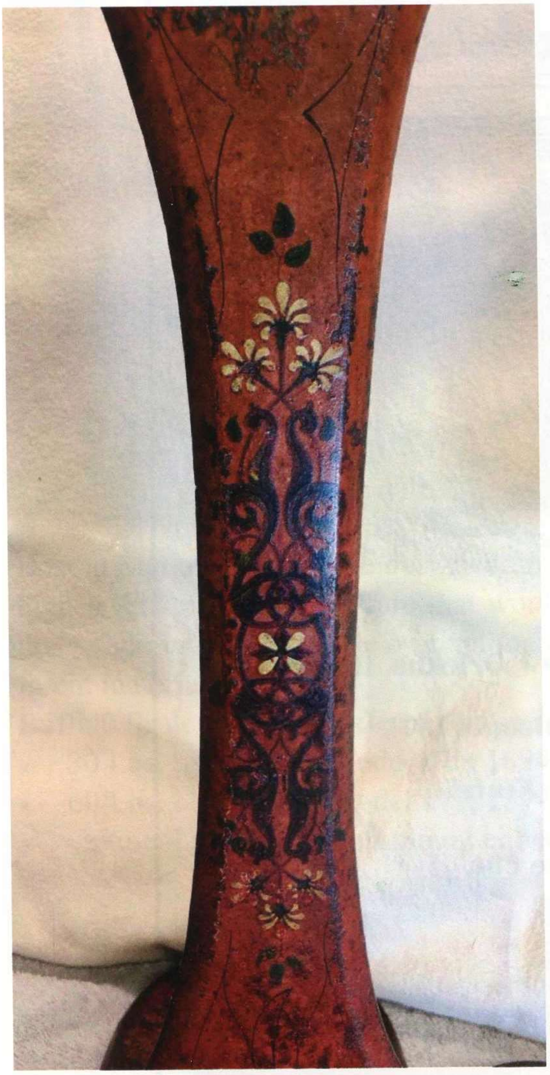
Can be hung on a bracket at same price. Beam, poises and bows brass, nickel-plated, marked on both sides.

▲▲ 1894 Buffalo Scale catalog page.

The top beam is graduated 0 to 15 lbs. by 1 oz. and the lower beam graduated 15 to 30 lbs. by 1 oz. A special hanging poise can be hung from the end of the beam to extend the scale capacity to 60 lbs. These range extension poises are often missing when one of these rare scales are found. Both beams have hand stamped numerals as indicated by uneven spacing and nonlinear alignment.



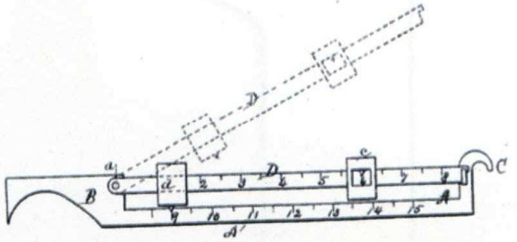
▲▲ The top beam is graduated 0 to 15 lbs. by 1 oz. and the lower beam graduated 15 to 30 lbs. by 1 oz.



▲▲ Highly decorated in Vermillion Red with very intricate tole painting.

A. A. HOUGHTON.
Scale-Beam.

No. 213,332. Patented Mar. 18, 1879



A. A. Houghton,
Inventor, by
J. R. Drake,
Atty.

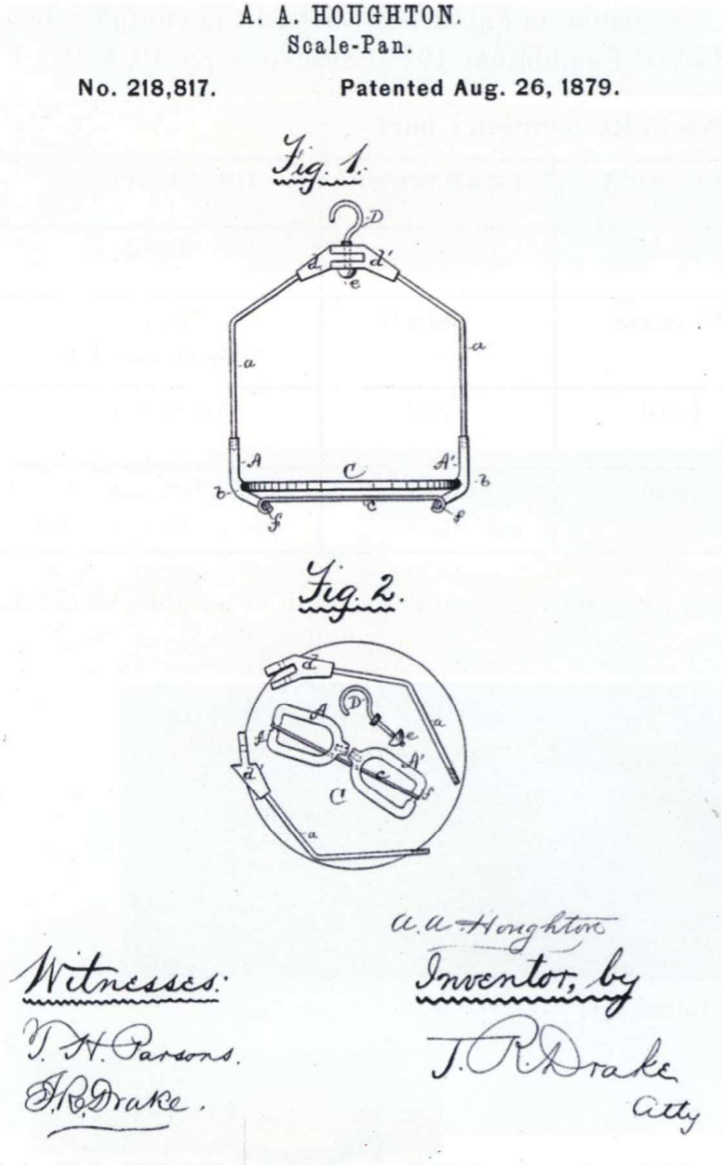
Witnesses:
T. H. Parsons.
J.R. Drake.

▲▲ U.S. patent # 213,332 issued March 18, 1879 for a combination hinged beam design combining two or more beams into a small space to make them practically one beam with the ability to remove one or more poises by sliding them off the end of the beam for sealing.

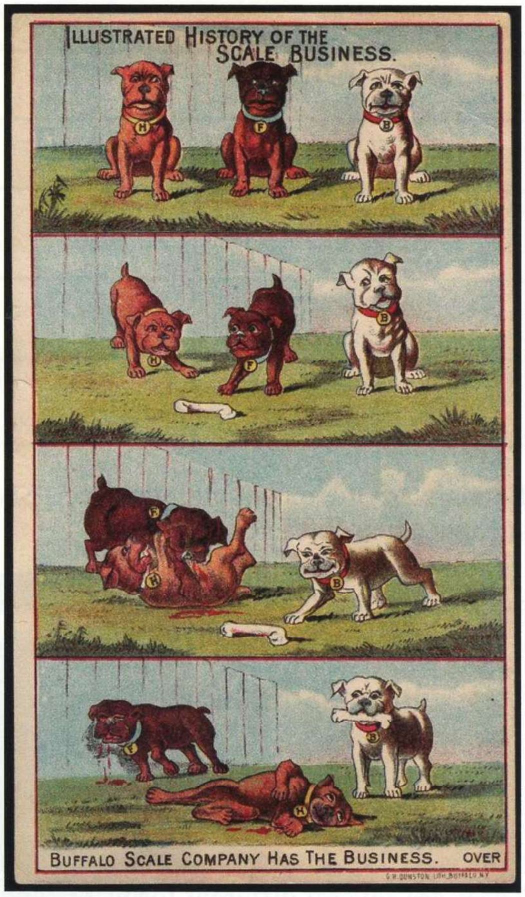
Alfred A. Houghton, Buffalo Scale Engineer, was issued two U.S. Patents for this design. U.S. patent # 213,332, issued March 18, 1879, for a combination hinged beam design combining two or more beams into a small space to make them practically one beam with the ability to remove one or more poises by sliding them off the end of the beam for sealing. U.S. patent # 218,817, issued August 1879, for the unique folding plate hanger that collapses completely flat within the diameter of the plate for compact shipping and facilitates cleaning. Refer to patent drawings included for reference.

Buffalo Scale won many awards for this scale design including “Best Market Scale” Gold Medal, New Orleans, 1884 – 85, and Gold Medal, World’s Fair, Chicago 1893.

A very interesting, and useful, addition to any collection.



⮝⮝ U.S. #218,817, issued August 1879 for the unique folding plate hanger that collapses completely flat within the diameter of the plate for compact shipping and facilitates cleaning.


ILLUSTRATED HISTORY OF THE SCALE BUSINESS.
H
F
B
BUFFALO SCALE COMPANY HAS THE BUSINESS.
OVER

⮝⮝ Interesting Buffalo trade card using dogs to represent the three largest scale companies. Howe is the light brown dog, Fairbanks the dark brown dog and Buffalo the white dog.

19th Century Shelf-edge Letter Scales

BY MICHAEL FOSTER

Examples of Bismars, Moving Load Scales & Steelyards, their Makers & Retailers

Introduction

There were a variety of portable and pocket size unequal-arm balances for letter weighing applications made in the British Empire in the 19th century. The best known of these are the shelf-edge letter scales.

Shelf-edge letter scales are found in three types of unequal-arm balances: steelyard, bismar, and moving load scale (MLS).

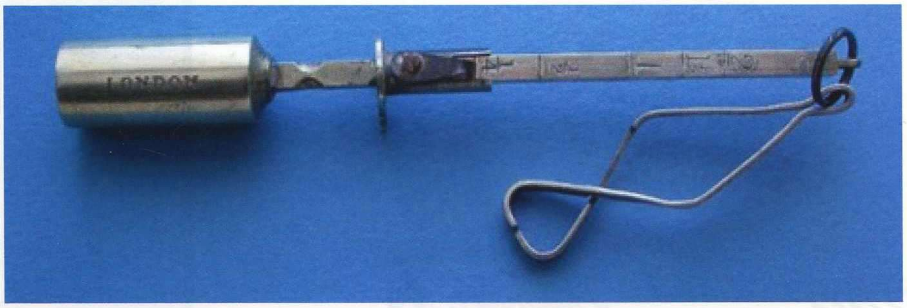
They can be classified based on the recognition information in Fig. 27, of Michael Crawforth's article: *"MLS - Steelmar or Bisyard?"*, published in the ISASC Equilibrium, 1987 Issue No. 3, pp. 1026-35.

Unequal-Arm Balances Recognition Chart

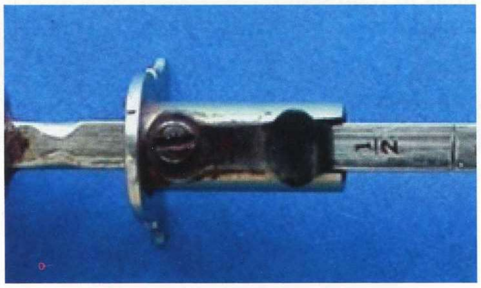
INSTRUMENT	POISE	FULCRUM	LOAD POINT	GRADUATIONS
Steelyard	Moveable	Fixed	Fixed	Equal
Bismar	Fixed	Moveable	Fixed	Unequal Closer toward load
Unequal Arm Balance	Fixed	Fixed	Fixed	Tip load only
MLS (Moving load scale)	Fixed	Fixed	Moveable	Unequal Closer toward fulcrum

Bismars are the most common type. Style 1a has a moveable fulcrum in the form of a saddle where the stirrups act as the fulcrum.

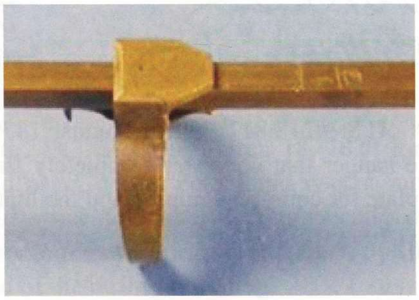
➢➢ Bismar Style 1a.



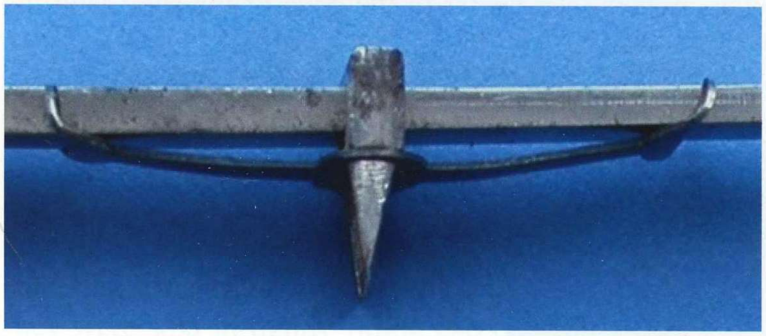
There are several different forms of saddles to be found.



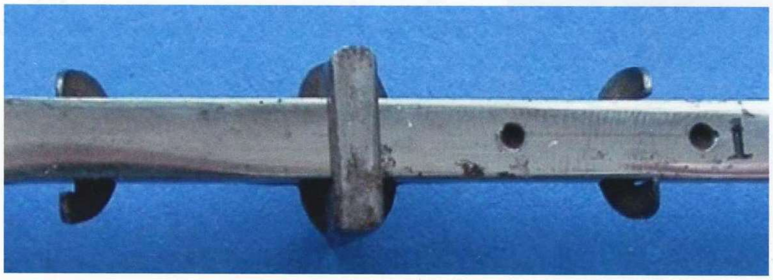
Saddle form 1 - Nickel-Alloy



Saddle form 2 - Brass

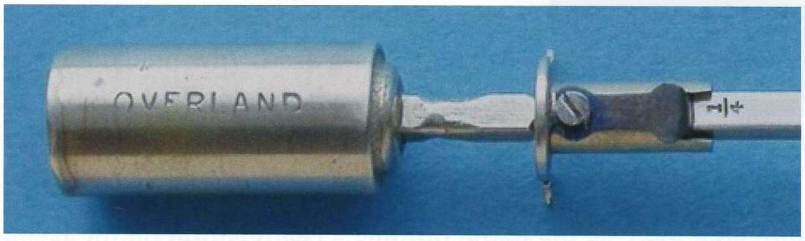


<< Saddle form 3 side - Nickel-alloy
The black straps are a flexure spring that hold the saddle in position on the beam.



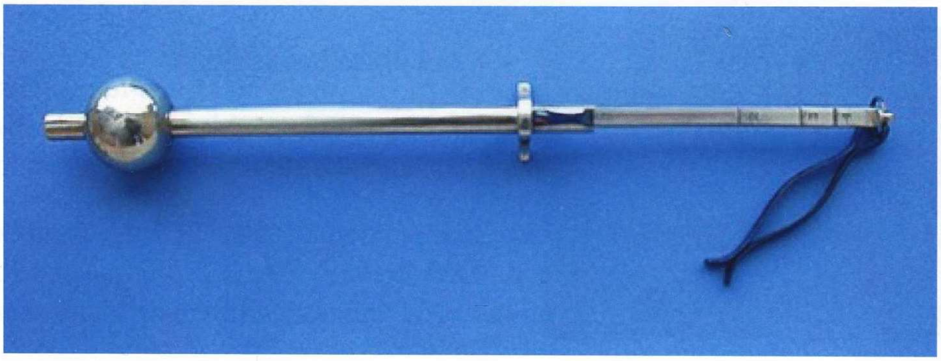
<< Saddle form 3 top

The saddle position on the beam indicates the weight of the letter. Many Bismars have reversible beams with two sets of graduations. The saddle can be rotated on the beam when it is right up against the poise, where the beam is cut away allowing the rotation of the saddle.



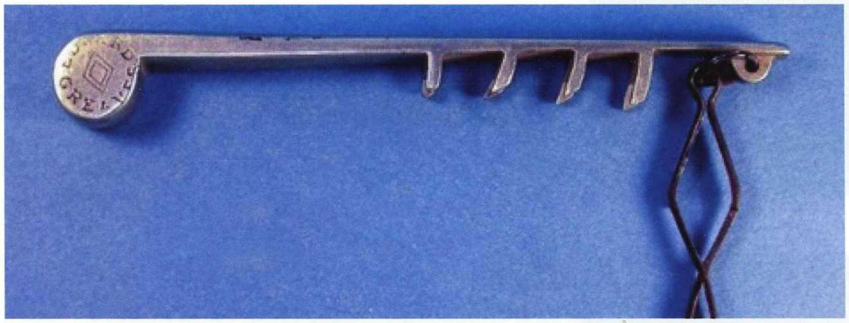
<< Rotating Saddle

Style 1b works by extending the beam length telescopically away from the fulcrum with the letter at the end of the beam. The reading on the extended beam indicates the weight of the letter.



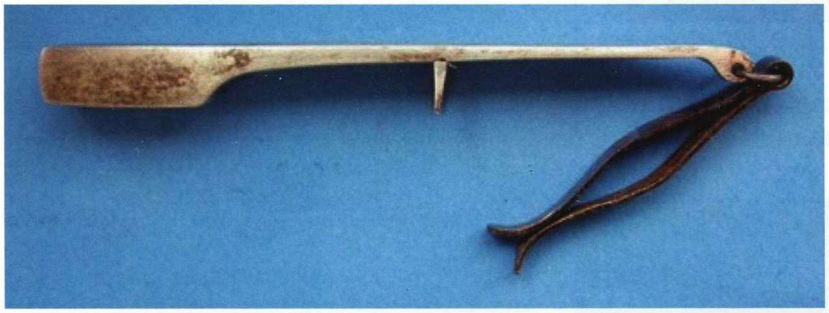
<< Bismar Style 1b

Style 1c has multiple fixed fulcrums that are set to indicate a load of ¼ oz, ½ oz, 1 oz or 2 oz. The user tested the letter, firstly by letting it rock on the feet furthest from the poise. If the beam did not rock, the bismar was moved nearer to the edge of the shelf, and the letter tested on the second pair of feet. If the letter still did not rock the beam, the bismar was moved even nearer to the edge of the shelf, and the third set of feet were used. As soon as the beam rocked, the user knew which postage to apply. If the user did the test in the reverse order, the letter would probably flick the bismar onto the floor.



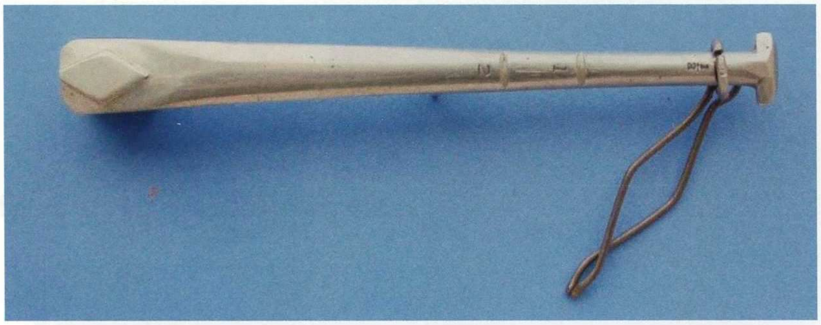
≺≺ Bismar Style 1c

A Bismar with only one fixed fulcrum is an Unequal arm balance testing to only one weight, usually ½ oz, 1 oz or 2 oz.



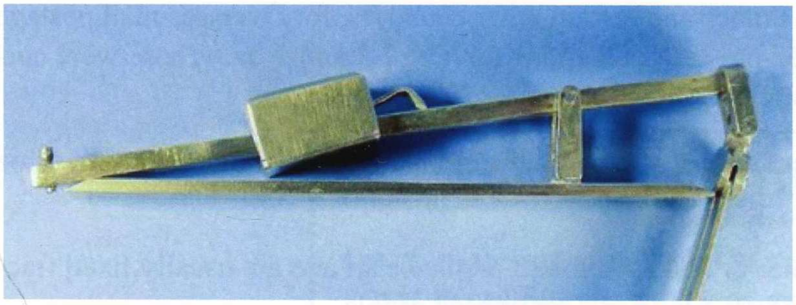
≺≺ Unequal arm balance

A second common type is an MLS, with a movable load, as the name implies. The position on the beam of the load when balanced indicates the weight of the letter. How the load moves, in an MLS, is by moving the letter along the beam, away from fulcrum, going from heavier to lighter weight positions.



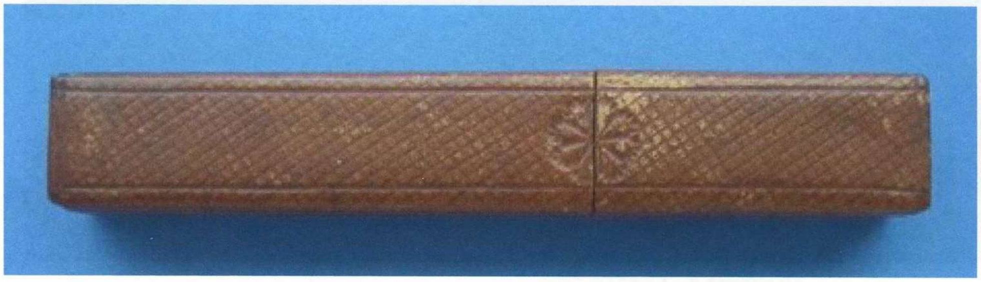
≺≺ Movable load scale (MLS)

A third rarer type is a Steelyard with a fixed fulcrum and load point. The position of the moveable poise on the beam when the letter is balanced indicates the weight



≺≺ Steelyard

These letter scales were popular from 1839 onwards, because of their pocket size and their portability. They were sold in tightly fitting cap-end cases, made of paste-board, usually covered with leather. To help prevent the user from putting the cap on incorrectly, little stamps were punched onto the edge of the case and the cap, so that they matched up when closed.



≺≺ Cap-end case

British Letter Rates

To understand why these graduations were used it is important to know some of the history of British Letter Rates. In England, the postal service from 1660, known as the General Post Office, had developed into a monopoly. Affirmed by Oliver Cromwell in 1654, for the collection and carriage of letters between post towns, there was no delivery system within the post town itself.

In 1765, Parliament authorized the creation of "Local Penny Post" in any town or city of the kingdoms of Great Britain and Ireland. The single postage rate of one penny was charged within the town or city area. By the beginning of the 19th century, there were many of these Local Penny Posts in operation.

Up to 1839, the cost of sending a letter was charged by distance travelled within the British Isles and the number of sheets of paper. In 1835, Rowland Hill published a pamphlet entitled "Post Office Reform," which led to various reforms and the introduction of the first postage stamp. Parliament was persuaded that they would not lose revenue and passed the reforms.

After August 12th, 1839, the Post cost was determined by the weight of the letter irrespective of the length of its journey. On 10th January 1840, the "Uniform Penny Post" for letters (see following Regulations) was established throughout the UK, facilitating the safe, speedy and cheap conveyance of letters.

During the period from 1840 to 1871, postage rates for "Inland mail" were based upon "½ oz steps", called "Postages". Concurrent with Inland mail and Postages, there were postage rates for "Overseas mail" based upon "¼ oz steps". Typical scales graduated for ¼ oz, ½ oz and 1 oz provided for the first four rates of Overseas mail. ½ oz and 1 oz were the most frequently used first two rates of Inland mail.

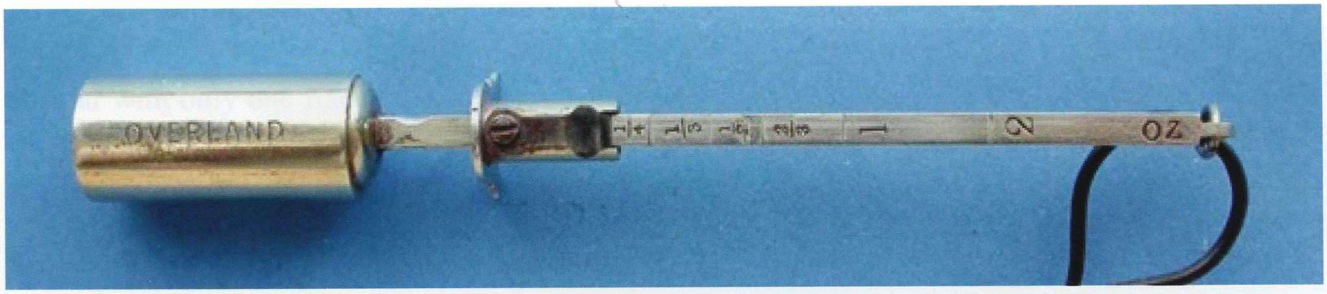
In 1869, a new agreement was reached with France and certain other countries, for Overseas mail postage rates based on “1/3 oz units”, which required pre-set graduations for 1/3, 2/3 and 1 oz. These were current until the formation of the Universal Postal Union (U.P.U.) in 1875.

On the formation of the U.P.U., all member countries had a uniform Overseas mail rate based on ½ oz (15 g.) for 2½ d.

The unequally spaced graduations on a Bismar or MLS are found on the beam and are usually fixed fractions like ¼, 1/3, ½, 2/3, ¾ or units like 1, 1 ½, 2, 2 ½, 3 or 4, of ounces or tola.

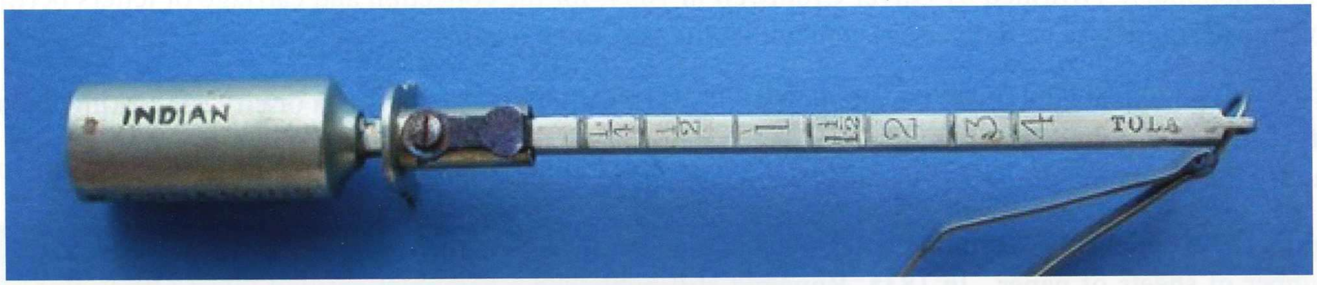
Postage to and from the Colonies

Bismars with a rotating saddle allowed for two sets of beam graduations. The first to determine a letter’s weight for “OVERLAND” postal rates in avoirdupois ounces “OZ” in England.



▲▲ “OVERLAND” postal rates in ounces

The second to determine the weight for overseas “INDIAN” postal rates to/from India or South Asia in “TOLAH” or “TOLA”.



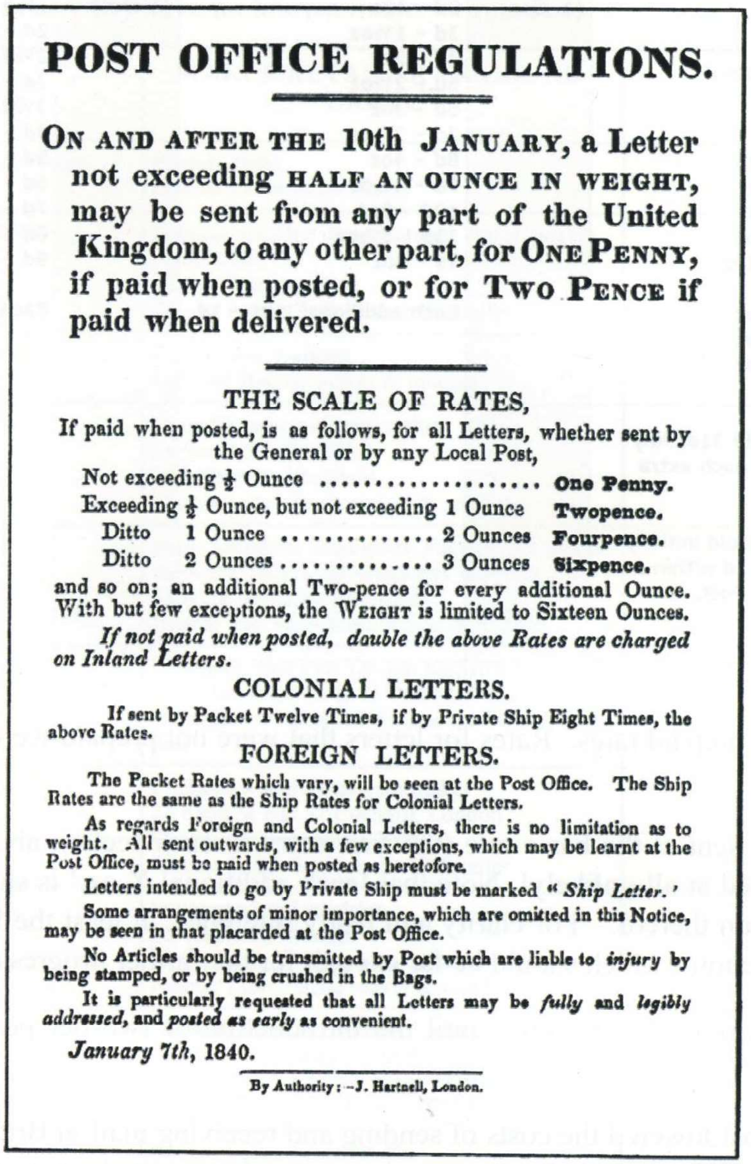
▲▲ “INDIAN” postal rates in TOLA

Tola also transliterated as tolah or tole, is a traditional Ancient Indian and South Asian unit of mass, now standardised as 180 troy grains (11.663 8038 grams) or exactly 3/8 troy ounce. It was the base unit of mass in the British Indian system of weights and measures introduced in 1833.[1]

British officials of the East India Co. and later the various Indian governing departments, and British families who wanted to send letters home to Britain would use Bismars with rotating saddles.

Royal Mail *Post Office Regulations* handbill

Uniform Penny Post, dated January 7, 1840



POST OFFICE REGULATIONS.

ON AND AFTER THE 10th JANUARY, a Letter not exceeding HALF AN OUNCE IN WEIGHT, may be sent from any part of the United Kingdom, to any other part, for ONE PENNY, if paid when posted, or for TWO PENCE if paid when delivered.

THE SCALE OF RATES,

If paid when posted, is as follows, for all Letters, whether sent by the General or by any Local Post,

Not exceeding ½ Ounce	**One Penny.**
Exceeding ½ Ounce, but not exceeding 1 Ounce	**Twopence.**
Ditto 1 Ounce .... 2 Ounces	**Fourpence.**
Ditto 2 Ounces .... 3 Ounces	**Sixpence.**

and so on; an additional Two-pence for every additional Ounce. With but few exceptions, the WEIGHT is limited to Sixteen Ounces.

If not paid when posted, double the above Rates are charged on Inland Letters.

COLONIAL LETTERS.

If sent by Packet Twelve Times, if by Private Ship Eight Times, the above Rates.

FOREIGN LETTERS.

The Packet Rates which vary, will be seen at the Post Office. The Ship Rates are the same as the Ship Rates for Colonial Letters.

As regards Foreign and Colonial Letters, there is no limitation as to weight. All sent outwards, with a few exceptions, which may be learnt at the Post Office, must be paid when posted as heretofore.

Letters intended to go by Private Ship must be marked "*Ship Letter.*'

Some arrangements of minor importance, which are omitted in this Notice, may be seen in that placarded at the Post Office.

No Articles should be transmitted by Post which are liable to *injury* by being stamped, or by being crushed in the Bags.

It is particularly requested that all Letters may be *fully* and *legibly addressed,* and *posted as early* as convenient.

January 7th, 1840.

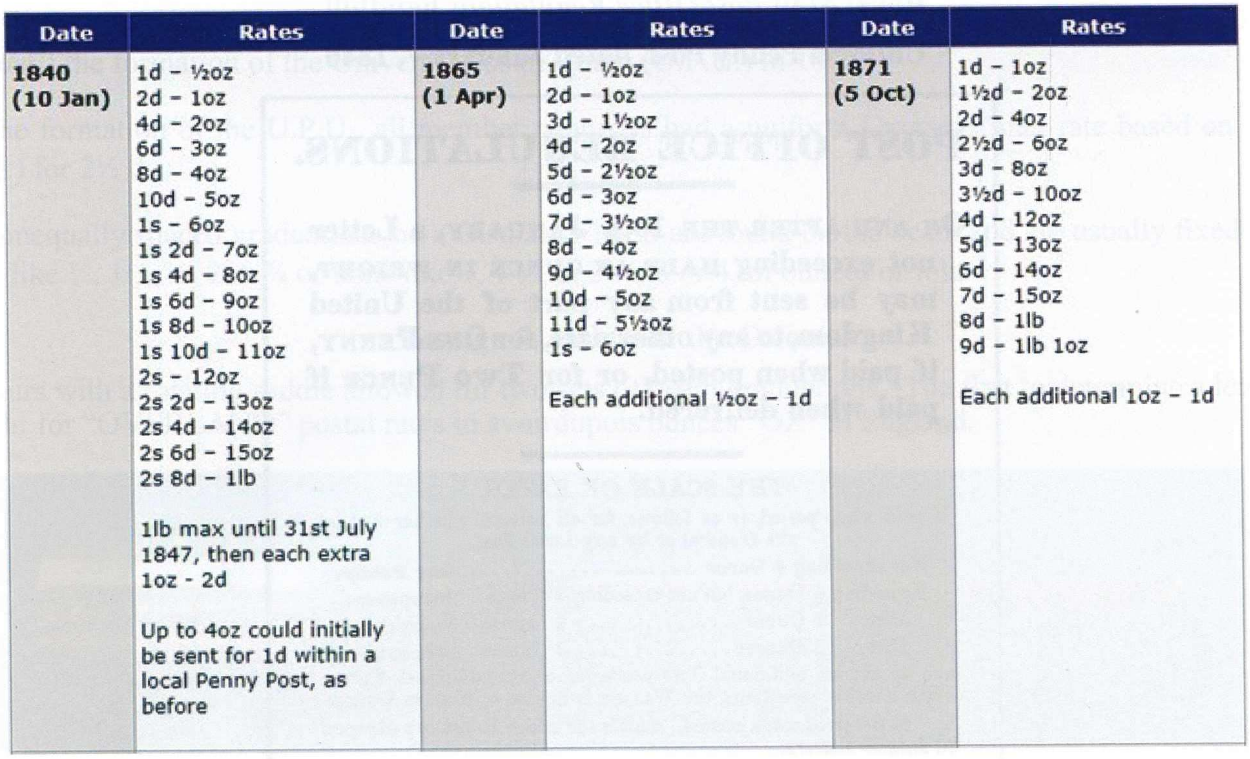
By Authority: –J. Hartnell, London.

The Packet rates were used by "Packet boats" which were medium-sized boats designed for domestic mail, passenger and freight transportation in European countries and the Colonies. They were used extensively during the 18th and 19th centuries and featured regularly scheduled service.

The above Inland mail postal rates were in effect in Britain until 1865. Note that the rates for Colonial Letters by Packet were twelve times, by private ship eight times.

A "letter" essentially meant anything that did not meet the special conditions for some other class of mail, and with only the overall postal restrictions on content. Rates in this period were straightforward, and interpretation of an ordinary cover charge was usually simply a question of noting what weight band was covered by a given rate.

British Letter Rates for Inland Mail from 1840 to 1871 [2]



Date	Rates	Date	Rates	Date	Rates
1840 (10 Jan)	1d - ½oz	**1865 (1 Apr)**	1d - ½oz	**1871 (5 Oct)**	1d - 1oz
	2d - 1oz		2d - 1oz		1½d - 2oz
	4d - 2oz		3d - 1½oz		2d - 4oz
	6d - 3oz		4d - 2oz		2½d - 6oz
	8d - 4oz		5d - 2½oz		3d - 8oz
	10d - 5oz		6d - 3oz		3½d - 10oz
	1s - 6oz		7d - 3½oz		4d - 12oz
	1s 2d - 7oz		8d - 4oz		5d - 13oz
	1s 4d - 8oz		9d - 4½oz		6d - 14oz
	1s 6d - 9oz		10d - 5oz		7d - 15oz
	1s 8d - 10oz		11d - 5½oz		8d - 1lb
	1s 10d - 11oz		1s - 6oz		9d - 1lb 1oz
	2s - 12oz		Each additional ½oz - 1d		Each additional 1oz - 1d
	2s 2d - 13oz				
	2s 4d - 14oz				
	2s 6d - 15oz				
	2s 8d - 1lb				
	1lb max until 31st July 1847, then each extra 1oz - 2d				
	Up to 4oz could initially be sent for 1d within a local Penny Post, as before				

All the rates above are prepaid rates. Rates for letters that were not prepaid were double and charged to the letter recipient.

Much of the mail was sent at the basic rate (the first entry in each section above), but higher rates should not be considered at all unlikely! Note that 'each additional X oz.' is shorthand for 'each additional X oz. or fraction thereof.' For clarity and ready reference, at least the first dozen rates have been shown in each section - which should be far enough for the further progression to be clear.

This structure of rates remained in force until the introduction of two-tier post on 16th September 1968.

The Uniform Penny Post lowered the costs of sending and receiving mail in Britain, which combined with the introduction of the postage stamp, as we know it today, created a new market for shelf-edge and portable letter scales.

This gave rise to opportunities for a number of Makers and Retailers in Britain who moved quickly to meet the demand for new letter scales, that is, for scales that could quickly determine the weight of a letter and permit the payment of the correct cover charge, or purchase of the correct postage stamps as necessary.

The Competition lead to a variety of new letter balances that were just as accurate as the shelf-edge scales by 1842. These included stand-mounted, folding and non-folding, and in the portable, pocket-sized area, the spring balances by makers like John Sheldon.

Makers / Retailers

The following Table contains the names, trade and address of currently identified Maker/Retailers of Shelf-edge Letter Scales in Britain and India with their known Dates of Operation. There are a number of Bismar and MLS scales that currently have no known maker or retailer.

NAME/ INITIALS [3]	MAKER/RETAILER TRADE, ADDRESS [4]	KNOWN DATES [4]
Bari Doab Canal Workshops	Punjab, India Bismar Letter Scale maker	c.1855
Farthing, John & Co.	Writing machine manufacturer, cutler, pocket book maker 42 Cornhill, London Bismar Letter Scale maker & retailer	c.1844 1848-57
Farthing & Thornhill	42 Cornhill, London Possible Bismar maker & retailer	1859-75
Greaves, Edward	Brass founder and steel refiner 56 South St. Sheffield 75 Milton St, Sheffield Bismar Letter Scale maker & retailer	1848-56 1859-76
Greaves, John & Son	Brass founders, Merchants, Factors and Manufacturers, Steel Converters and Refiners. 5**4** & 56 South St, Sheffield Bismar and MLS Scale maker & retailer	1839-47
Hooper, Henry	Publisher, first ever Design Registration in 1839, home office at 13 Pall Mall East, retailed at Corner of Catherine St. and the Strand, London	1828-42
Lund, William	Corkscrew and metalware maker 24 Fleet St and 57 Cornhill, London Design registrations in 1839 Bismar Letter Scale maker & retailer	c.1839-1861
S. Mordan & Co.	Stationers' and sundries, 22 Castle St, London 22 City Rd. & Cheapside, London Bismar Letter Scale maker & retailer	1827-43 1844-1941
Oakes & Co.	Department store, Madras, India Bismar Letter Scale retailer	1856-63
P. Orr & Sons	Retail Outlet, Watches & Time keepers, Mount Rd, Madras, India. Bismar Letter Scale retailer	1846 on
Richardson & Co.	Bismar Letter Scale maker. Single fixed fulcrum	c.1840
Rodgers, Joseph & Sons	Knives and razor manufacture, Silversmiths. 6 & 7 Norfolk St, Sheffield Bismar Letter Scale maker & retailer	1828-79
Thornhill, Walter & Co.	Silversmiths and jewellers, 144/145 New Bond St., London Bismar Letter Scale maker & retailer	1850-75
W. Tonks & Sons	Brass founder, metal workers, steel toy maker, 209 Cheapside, Birmingham Moseley St., Birmingham Bismar Letter Scale maker	1852 1864-84
Wade, Wingfield & Rowbotham	Knives, razors & files manufacturer, 82 Tenter St, Sheffield Bismar and MLS Letter Scale maker & retailer	1818-46

NAME/ INITIALS [3]	MAKER/RETAILER TRADE, ADDRESS [4]	KNOWN DATES [4]
Walker, John & Co.	Scale-maker, 5 Bridge St, Borough, London Steelyard Letter Scale maker & Retailer (Walkers Compactum)	c.1840
Unknown	Unequal Arm - Single Fixed Fulcrum	
Unknown	Bismar - Three Fixed Fulcrums	
Unknown	Bismar - Four Fixed Fulcrums	
Unknown	Bismar Sliding / Movable Fulcrum	
Unknown	Steelyard	

Some assistance in determining the possible years of manufacture of a particular scale comes from:

a. the years of British Letter Rate Regulation changes (1840, 1865, 1871).
b. agreements for Overseas Postal rates (1869).
c. the formation of the Universal Postal Union (1875).
d. observing the changes in beam graduations by the makers.
e. Business Directory and Newspaper verified known years of a named maker or retailer operations.

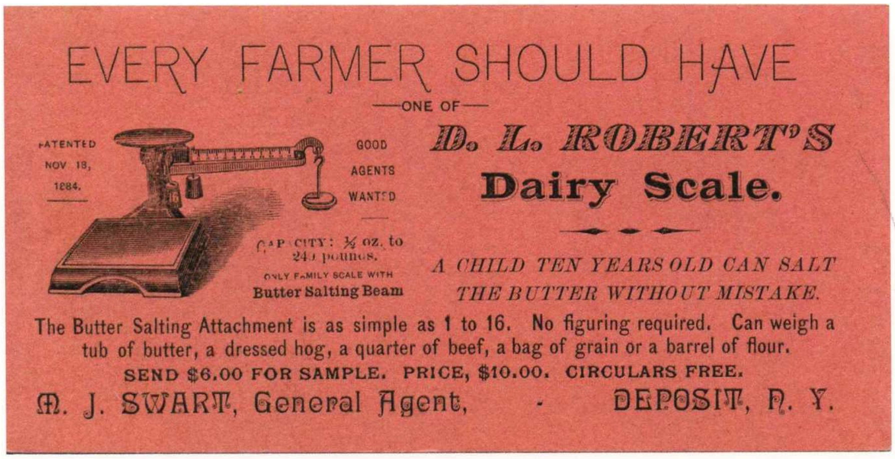
These years are indicated with a circa date in the following Section which illustrates examples of Steelyard, Bismar, and MLS Letter Scales found in the author's and other ISASC member collections.

References:

1. Prinsep, James (1840*), Useful tables, forming an appendix to the Journal of the Asiatic Society: part the first, Coins, weights, and measures of British India* (2nd ed.), Calcutta: Bishop's College Press, *pp. 65–74, 79–90.*
2. The Great Britain Philatelic Society: http://www.gbps.org.uk/information/rates/inland/letters-1840-1968.php
3. The Name or Initials are taken off the shelf-edge letter scale.
4. Maker and Retailer trade information, addresses and known dates of operation are primarily derived from the Crawforth Index.

Old Advert

This trade card dates from the late 1800s as the Dairy Scale with its Butter Salting Beam it advertises was patented on Nov. 18, 1884.


EVERY FARMER SHOULD HAVE

—ONE OF—

D. L. ROBERT'S

Dairy Scale.

PATENTED NOV. 18, 1884.

GOOD AGENTS WANTED

CAPACITY: ½ oz. to 240 pounds.

ONLY FAMILY SCALE WITH Butter Salting Beam

A CHILD TEN YEARS OLD CAN SALT THE BUTTER WITHOUT MISTAKE.

The Butter Salting Attachment is as simple as 1 to 16. No figuring required. Can weigh a tub of butter, a dressed hog, a quarter of beef, a bag of grain or a barrel of flour.

SEND $6.00 FOR SAMPLE. PRICE, $10.00. CIRCULARS FREE.

M. J. SWART, General Agent, - DEPOSIT, N. Y.

ISASC

EQUILIBRIUM®

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2019 ISSUE NO. 3 PAGES 4609 - 4636

Cover Picture

This tiny roberval is only 5 inches across and 5 inches tall. It is discussed on pages 4611-4625. It was made by James Templar Shenston between 1833 and 1846. Three tiny iron robervals are known, made by other scale-makers, but this is the only brass one known. It is constructed on the English pattern, with two tower-like cases held together by the bottom cover over the bottom linkage, plus a bar across the top. It is easy to remember that it has no support in the middle by thinking it is like the Tower of London Bridge, whereas the French pattern has a support in the middle like the Eiffel Tower.

Collection of Gregg Motter.

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Showcase 4636

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Photos are best in 300 DPI Jpegs in a separate file with a maximum of 3 photos per Email.

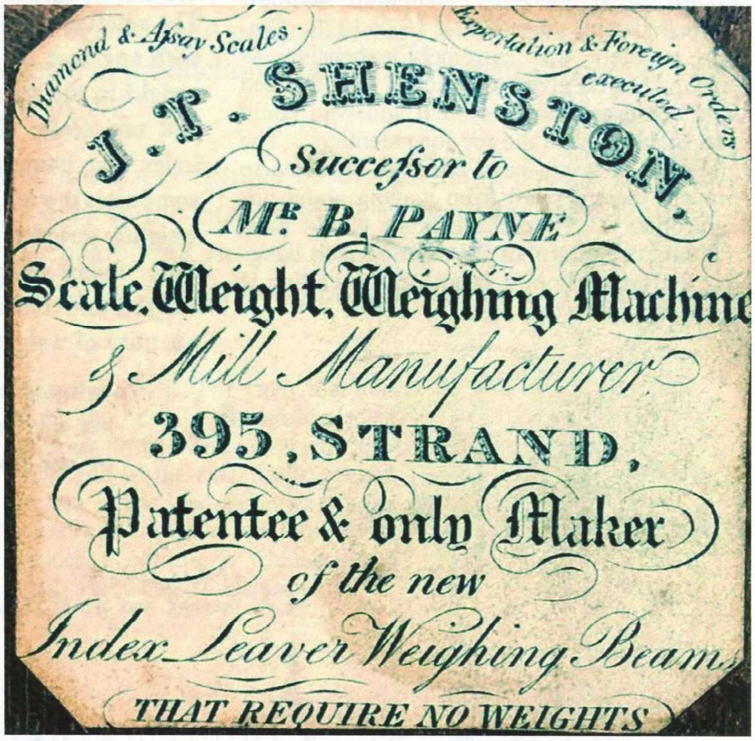
James Templar Shenston (1801-1846)

BY DIANA CRAWFORTH-HITCHINS & GREGG MOTTER

James Templar Shenston was born in London in 1801 to Samuel and Florinda Shenston. He had a younger brother Samuel Shenston II and at least two sisters, but finding details of the family has proved to be extremely difficult, as they all failed to face up to officialdom and they neglected their legal duties.

James' father was an oilman, a good trade in the days of oil-lamps and numerous small steam engines needing oil in the workshops of London. (Oil basically meant whale oil, not petroleum.) He paid the huge sum of £25[1] for James to be apprenticed to Benjamin Matthew Payne, a scale-maker in Blacksmiths' Company[2].

James started his training in a thriving workshop with one older apprentice, Henry Oakes, and after two years, a younger apprentice, John Yates II. The convention was that the Master's wife would be a surrogate mother to the apprentices, feeding them, washing their clothes, providing bedding and generally making sure that they were fit and healthy. James saw (and probably helped to make) various types of scales being made by Payne, including coin/apothecary scales, hydrostatic scales for chemical experiments, tiny iron robervals in a box, diamond scales, and steelyards.



Diamond & Aſsay Scales.

Exportation & Foreign Orders executed.

J. T. SHENSTON.

Succeſsor to

Mr. B. PAYNE

Scale, Weight, Weighing Machine

& Mill Manufacturer.

395, STRAND,

Patentee & only Maker

of the new

Index Leaver Weighing Beam,

THAT REQUIRE NO WEIGHTS

Figure 1. ⮝⮝ Shenston's trade card, sometimes cut across below the address, to fit in boxes.

After being freed in 1826, James formed a partnership with Thomas Hunsdon Gore, one year his junior, who was trained by Richard Vandome, also a scale-maker in Blacksmiths' Co. They started at 227 High Street, Shoreditch, London, as Scale, Weight and Mill-makers, until 1832 , during which time Thomas Gore took three apprentices, firstly Thomas Medwin (who was turned over to Thomas Williams, scale-maker in Blacksmiths' Co, in 1832 and freed in 1842 to become a Master scale-maker), secondly, George Rowse in 1827, (who worked for, then stole a weighing machine from, Thomas Hunsdon Gore in 1841, value 12/-, for which crime he was gaoled for 14 days) and thirdly, Henry Turner in 1830, (who was freed in 1837, but not known as a Master scale-maker, so was probably a journeyman working for a Master scale-maker.)

Gore & Shenston moved to 18 Vine Street, Hatton Garden[3] in 1832, where Samuel Phillips was making scales. (The use of one building by more than one scale-making business was not unusual in the 18th and 19th centuries, but we do not know the exact relationship of these businesses.) Shenston knew Samuel Phillips from their days as apprentices to Benjamin Payne, although Samuel was seven years older than Shenston, and had trained with two scale-makers, William Fage of Blacksmiths' Co, for four years, then Benjamin Payne for three years, so probably had finished up with more knowledge than Shenston.

By 1834, James Shenston had parted company with Thomas Hunsdon Gore (who set up in business alone, leading to a dynasty of Gores making scales into the 20th century) and moved to very smart premises at 395 Strand, a major shopping street going from the City of London to Westminster. He took over the business of his former Master, Benjamin Payne, (possibly with an agreement for Shenston to pay in the future when his profits increased). See Figure 1.

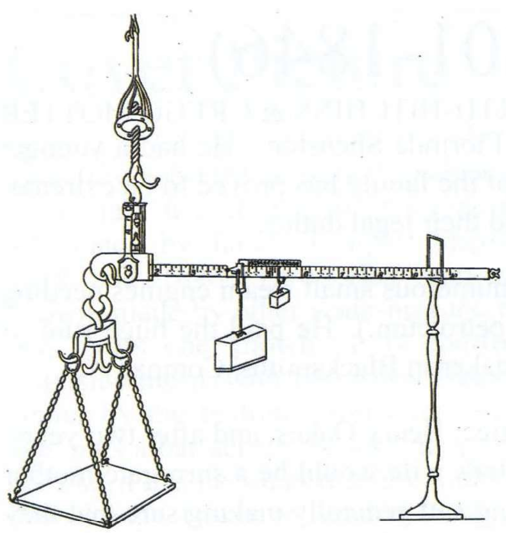


Figure 2a, b. ▲▶ Benjamin Matthew Payne's patent, no. 5686 of 1828-1829. Getting a patent was extremely expensive, as 'tips' had to be given to officials who decided who could access the system and who could not, in addition to the fee for patenting.[4] The guard on the right-hand end was designed to prevent the steelyard from waving about uncontrollably. A small steelyard would have this table version, but Payne suggested hanging the guard from a beam on the ceiling if used, say, in a warehouse.

The new improved large and small patent moving slide indexed weighing levers, beams, or stillyards are made with any sort of scale beam ends or stillyard heads, with a body, pin, and cheek, a tail indexed with lever power, and a moving graduated slide index or rider on the tail index, requires but two weights and only one scale for general goods; if to weigh hogsheads, tubs, or bales, then they require can-hooks and chains. The moveing slide index on the tail has a pin and cheek, and carries out the two weights on the tail index any length to give the power of lever required. The indexes then shew the equilibrium of weight, the large marked tail index show the hundreds and quarter of hundreds, and on some sizes the fourteen pounds and seven pounds, and the small moving slide index show the pounds, and on some sizes the half and quarter of pounds. Each index has a steel edge to fix the equilibrium, or a thumb screw to fix for the same purpose. They have also for supporting the lever tail a pillar porter, standing on the ground or fixed to the ceiling joist as may be needful; they likewise have a screw power to raise by one man any heavy weight with facility, which is too heavy to be lifted into the scale, or to lift from the ground any hogsheads, tubs, or bales, when weighted with can-hooks. The small moving sliding indexed weighing lever beams or stillyards are made with any sort of scale beam ends or stillyard heads and weights, the smallest weight in the same way as the large ones, requiring, as them, only two weights and one scale, showing the equilibrium of weight by two indexes, the tail index the pounds, and the moving slide index the ounces and drams, and on some sizes the tail index show the ounces, and the moving slide index the pennyweights, scruples, and grains. The annexed sketch shows a patent moving slide index weighing lever beam and scale, which weighs ten hundredweight, and the rider index graduated to fourteen pounds, being the same quantity of weight as each division on the tail index.

In witness whereof, I, the said Benjamin Matthew Payne, have hereunto set my hand and seal, this Seventeenth day of February, in the year of our Lord One thousand eight hundred and twenty-nine.

BENJ^{N} MATT^{W} (L.S.) PAYNE.

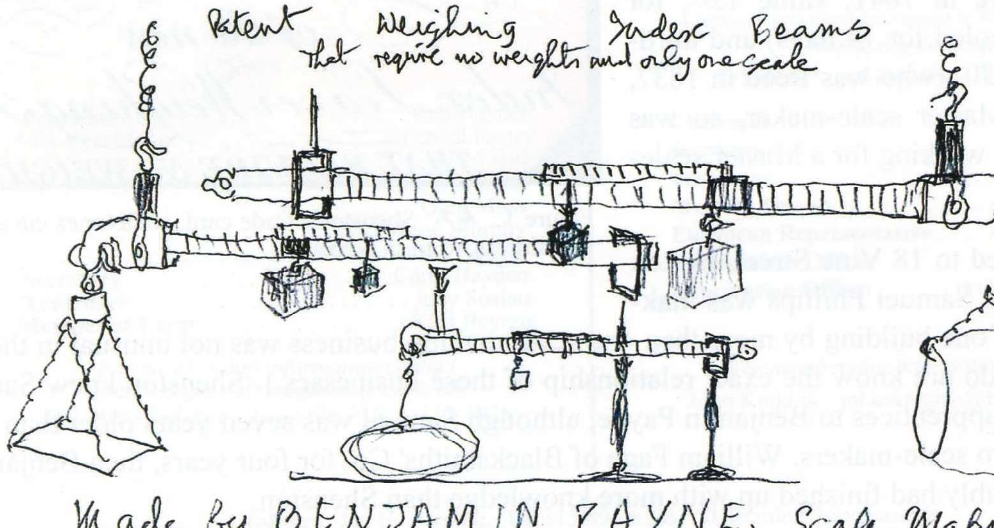

Patent Weighing Index Beams
that require no weights and only one scale
Made by BENJAMIN PAYNE, Scale Maker,
395 Strand, near Southampton street.

Figure 2c. ▲▲ John Millburn found this picture of three sizes of the patented steelyard, and drew them for us while at the British Newspaper Library.

Payne offered various sizes of his patent steelyard. The largest he mentioned was for about 10cwt or 1120 lb (for Warehouses, Customs or industry), then smaller ones in units of stones of 14 lb (for butchers or farmers), then very small in ounces and drams (for apothecaries) and smallest, in ounces and grains (for weighing coins or jewels).

Although Payne patented the steelyard for very heavy loads or tiny loads, it does not mean that he ever made all sizes. He protected the idea so that he could, if he wished, make all sizes without competitors copying his idea, but he was not compelled to make them.

The fact that Shenston advertised Payne's steelyards means that at least two of the sizes were made, but not necessarily all sizes. Shenston offered 5 ton patent steelyards to emigrants to New Zealand in 1840. Never having seen one of these steelyards, we are left wondering about the little versions.

Payne was not the only scale-maker who attached a second poise onto the bigger poise. Jesse Ramsden did it in 1772, and Benjamin Martin did it in 1773 with a tiny pear-shaped poise that very easily got lost. Nowadays a patent can be given only for a new idea not already in production, but in 1828 patent officers did not have the means to check so thoroughly, so Payne got his patent.

The drawing on the patent was dual purpose. It showed the larger fittings on the left-hand end of the beam, such as would be needed to weigh massive loads, and showed the fittings for very small loads being measured on a table or counter on the right-hand end of the beam. As shown, the poises were not securely attached to the saddle, and might easily get lost, but probably the poises were properly attached in reality. See Figure 3.

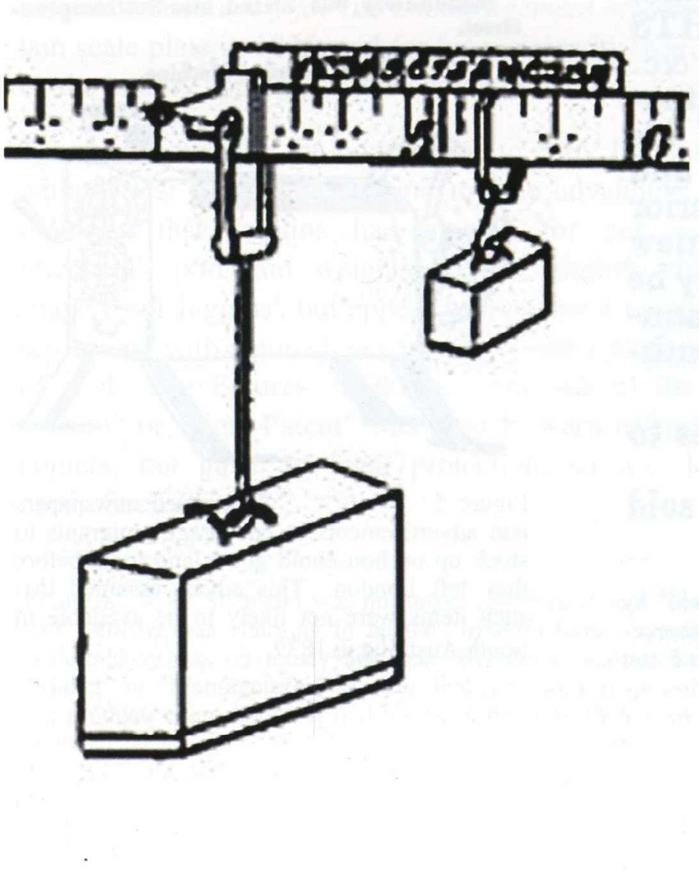


Figure 3. ≺≺ The rider that slid along the beam, with the big poise hanging down. The nib on the left-hand end of the rider indicates the weight of the load as under 4 units (hundredweights, stones, pounds or ounces, according to which size of steelyard the artist has drawn.)

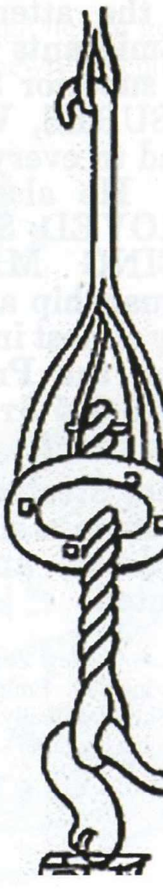
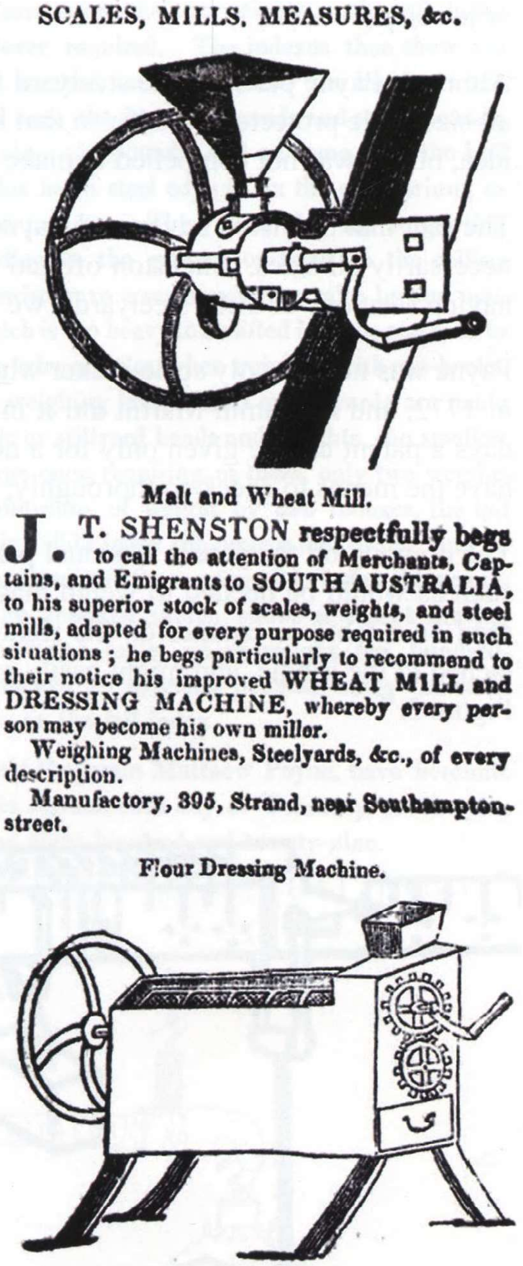


Figure 4. ≻≻ This curious suspension gadget seems to be a mechanism for lifting the loaded platform just enough off the ground to show the weight of the load. It might be a double-thread screw.

Being aware of the difficulty of handling hogsheads[5] or other large containers, Payne mentioned in his patent a screw to raise the steelyard whilst weighing. See Figure 4. Presumably this was the screw, poorly drawn. It is not obvious how it was used without spinning the steelyard round!

James Templar Shenston married in 1837 Mary Ann, the daughter of an Italian immigrant, Joseph Garbanati, a carver & gilder. No offspring survived until 1844. Baby Maria Noy Shenston was born in about 1844 and Maria Susan Shenston about a year later.

Shenston was certainly enterprising, putting advertisements in newspapers that would attract the attention of traders and emigrants to Australia and New Zealand[6]. See Figures 5. He emphasised his mills, much-needed tools in rural areas where industrial milling was not available. Mills were commonly made by scale-makers, not only for grinding wheat, but also for coffee and other domestic purposes. See Figure 6. Shenston stated on his trade card that he worked on "*Exportation & Foreign orders*", so a Sea Captain trading with the Colonies could bring an order back, have it fulfilled by Shenston, and take the scales and mills on his next trip.



SCALES, MILLS, MEASURES, &c.

Malt and Wheat Mill.

J. T. SHENSTON respectfully begs to call the attention of Merchants, Captains, and Emigrants to SOUTH AUSTRALIA, to his superior stock of scales, weights, and steel mills, adapted for every purpose required in such situations; he begs particularly to recommend to their notice his improved WHEAT MILL and DRESSING MACHINE, whereby every person may become his own miller.

Weighing Machines, Steelyards, &c., of every description.

Manufactory, 395, Strand, near Southampton-street.

Flour Dressing Machine.

Figure 5. ⩓⩓ Specialised newspapers had advertisements to encourage emigrants to stock up on household goods and tools before they left London. This advert assumed that such items were not likely to be available in South Australia in 1839.

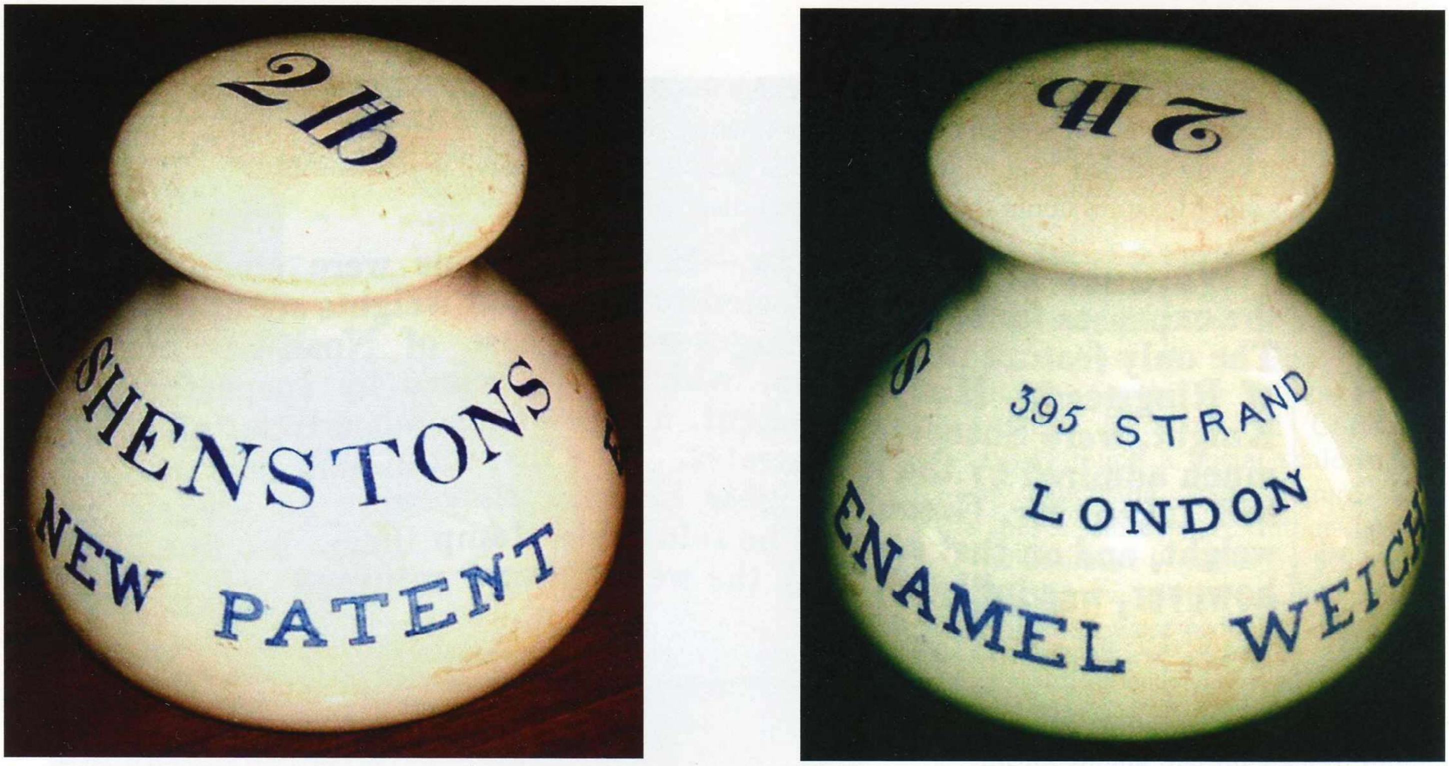
EVERY MAN HIS OWN MILLER.

J. T. SHENSTON respectfully begs to call the attention of Merchants, Captains, and Emigrants to the Colony of New Zealand, to his superior Stock of SCALES, WEIGHTS MEASURES, WEIGHING MACHINES, &c. adapted to every purpose required in such situations. He also solicits an inspection of his IMPROVED STEEL WHEAT MILLS and BOLTING MACHINES of most superior Workmanship and real utility, articles in a new Colony almost indispensible. The above may be seen on the Premises where they are manufactured, 395 STRAND, five doors West of Southampton street.

Patent Steelyards on Improved Principles to weigh from a single pound to 5 tons.

Wholesale and retail, and every article sold warranted.

Figure 6. ⩓⩓ New Zealand was only just beginning to be colonised[6] by Europeans in 1840. Emigrants needed to be very independent and resourceful. Did Shenston really think that one would take a steelyard with 5 ton capacity in his luggage?



Figures 7 a & b. ▲▲ An exceptional undamaged pot weight made between 1838 and 1846. The word "Enamel" was used to mean glazed. These pot weights were very popular with tradesmen, and were available in sets commonly from 7lb down, but occasionally from 14lb down. Due to their propensity to absorb water, or crack, Inspectors of Weights & Measures disliked them, sometimes refusing to stamp them or even break them to pieces. The law relating to cased weights was ambiguous, & lead to many court cases.

Note the inclusion at the bottom of his 1839 advertisement for "*Patent Porcelain Weights*". Porcelain weights were invented by William Juggins in about 1837, but he did not patent the idea, although he did get the approval of the *Society for the Encouragement of Arts, Manufacture & Commerce* for his newly invented porcelain scale plate in 1835, and for his weights in 1837, made by the pottery company Copeland and Garrett.

This gave Shenston the opportunity to copy Juggins' idea without fear of retribution, and to take advantage of the publicity that Juggins had created for pot weights. Shenston's porcelain weights were a slightly different shape from Juggins', but appear to have been made in the same way, with a porcelain case filled with a large amount of lead. See Figures 7a & 7b. The use of the word "Patent" or "New Patent" was used to warn off potential copiers, but gave no legal protection, so was loosely used. See Figure 8.

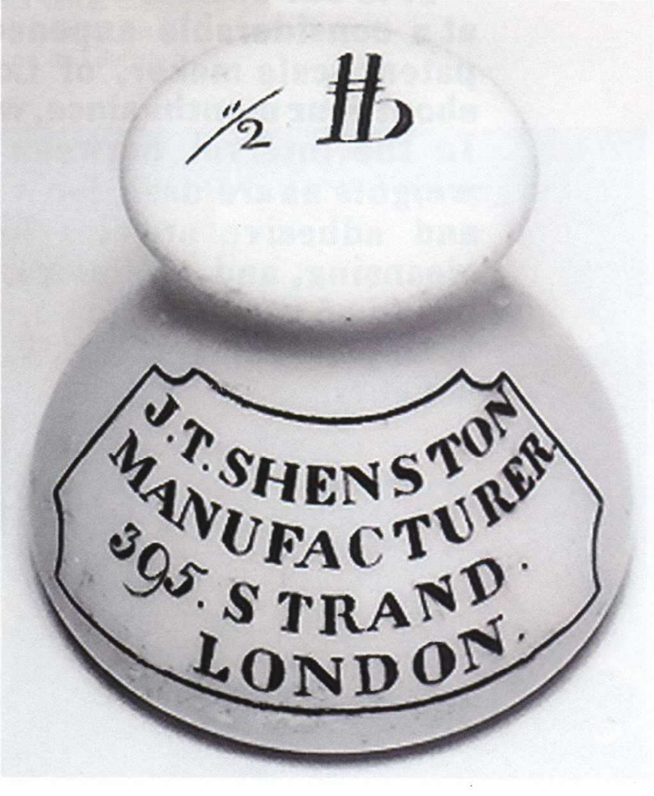
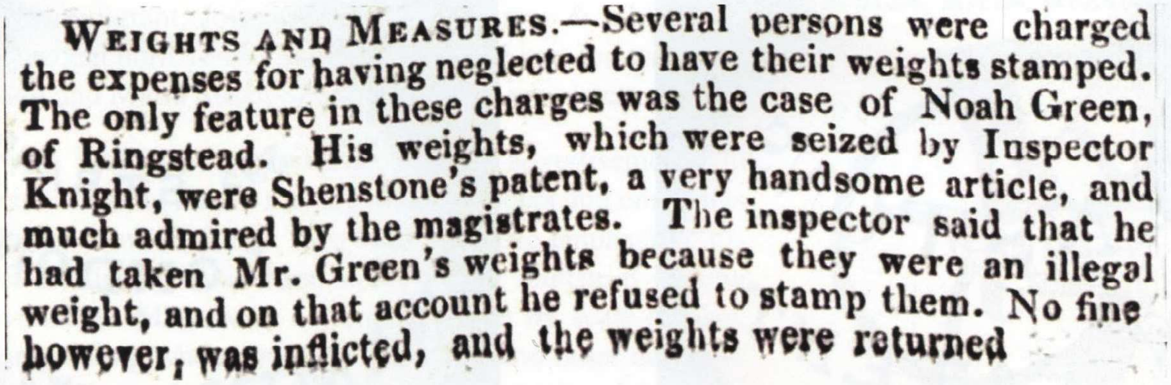


Figure 8. ➤➤ Shenston was no longer claiming it as a "New Patent", but he was claiming to be the "Manufacturer", which, as a scale-maker, was obviously not true. But many scale-makers put "Maker" or "Manufacturer" to mean that they were responsible for the product, even though it had not been made in their own workshops.

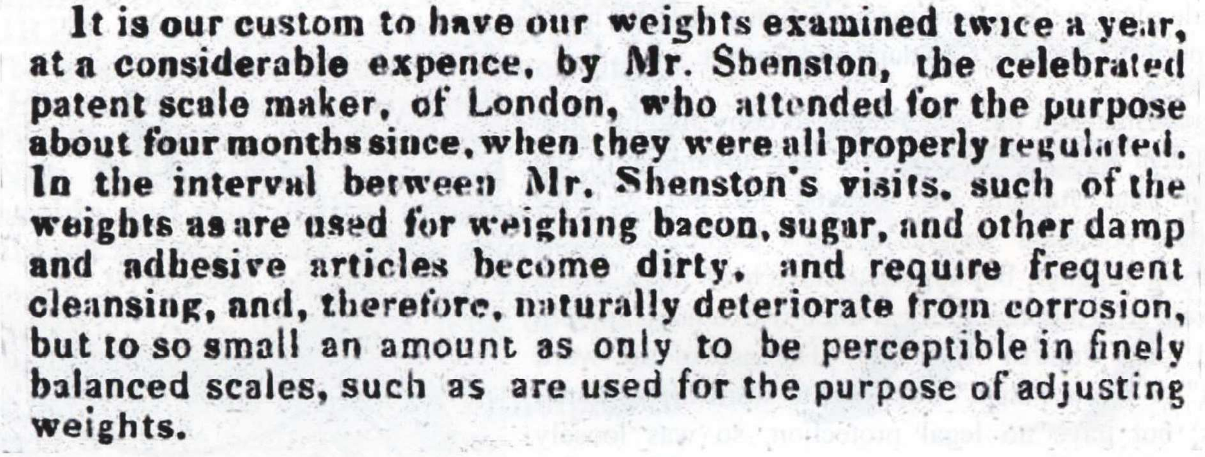
As far as is known, Shenston was the second person to sell porcelain weights, and he only just got caught up in the arguments about weights made predominantly of lead, encased in a porous china that absorbed water when being cleaned. See Figure 9. He was dead before the heated arguments arose with Inspectors of Weights and Measures about the legality of their use.



WEIGHTS AND MEASURES.—Several persons were charged the expenses for having neglected to have their weights stamped. The only feature in these charges was the case of Noah Green, of Ringstead. His weights, which were seized by Inspector Knight, were Shenstone's patent, a very handsome article, and much admired by the magistrates. The inspector said that he had taken Mr. Green's weights because they were an illegal weight, and on that account he refused to stamp them. No fine however, was inflicted, and the weights were returned

Figure 9. ▲▲ Pot weights had been on the market for seven years, & inspectors all over the country were worrying about their legality. In this case, the magistrates were lenient, but whether Mr. Green was allowed to use them again seems doubtful.

Shenston made scales very much like those of his Master and predecessor, Benjamin Payne, for coins, diamonds and assaying. He advertised weighing machines on his trade card. These may have been roberval counter scales, made for the numerous shops in the vicinity of the Strand. He maintained and repaired scales, having contracts with local shop-keepers, to keep their scales and weights in a good, legal condition. Some shop keepers needed him to attend twice a year, and some four times a year, depending on the amount of wear of their scales and weights. See Figure 10.



It is our custom to have our weights examined twice a year, at a considerable expence, by Mr. Shenston, the celebrated patent scale maker, of London, who attended for the purpose about four months since, when they were all properly regulated. In the interval between Mr. Shenston's visits, such of the weights as are used for weighing bacon, sugar, and other damp and adhesive articles become dirty, and require frequent cleansing, and, therefore, naturally deteriorate from corrosion, but to so small an amount as only to be perceptible in finely balanced scales, such as are used for the purpose of adjusting weights.

Figure 10. ▲▲ Shenston practised the same system of contracting as most other scale-makers. They offered to adjust & repair tradesmen's scales and weights by the year. This was usually sufficient to keep them within legal limits, but occasionally a scale-maker had to go to Court to back up his client's plea of innocence.

He made normal little equal-arm beams to weigh coins and drugs, so that people could check their gold coins, or weigh out the ingredients to prepare medicines used at home. See Figure 11.

Shenston lived into the age of the Penny Post after 1839, so joined in the rush to offer postal scales. Norman and Christine Biggs found a postal scale made by Shenston. See Figure 12. These scales were rather larger (with a base 9 inches by 5½ inches) than would be needed in the home, so were probably made for office use. A few makers introduced handsome scales very similar to Shenston's, but they had the disadvantage that the central pillar allowed the scales to swivel when they worked loose.

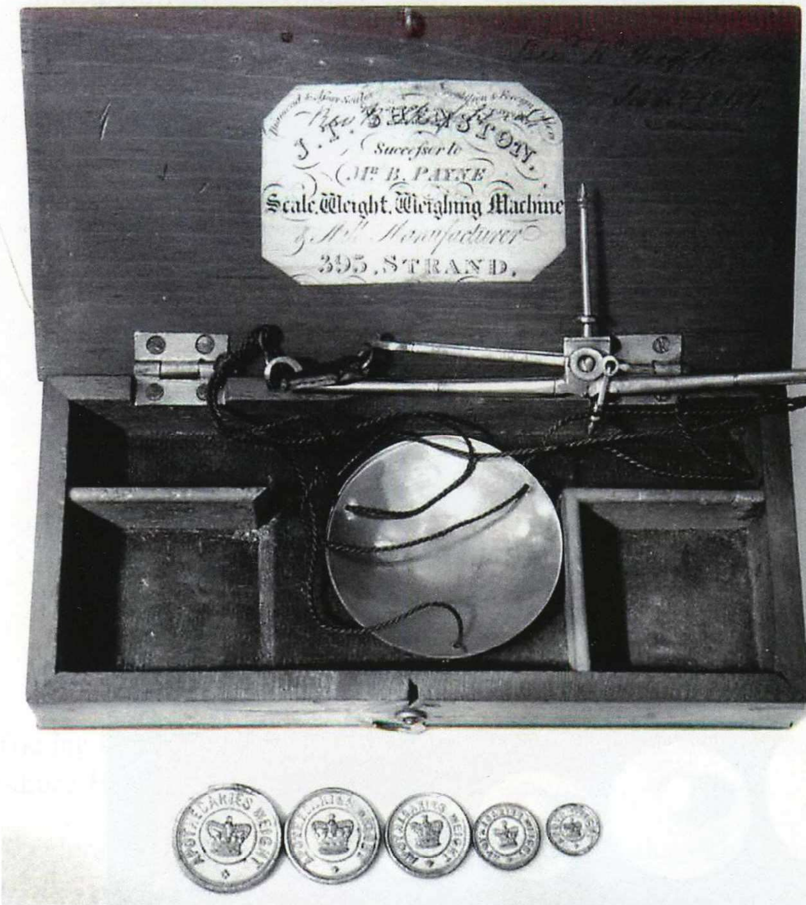


Figure 11. ▲▲ Many scale-makers in London made these boxes about 7-8 inches long, containing either swan-neck beams (like this one) or with box-ends that were more difficult to make, and thus cost more. The cheaper ones might be sold in an oak box, or a mahogany box, with either a cheap cloth lining or with a velvet lining. Sometimes they contained coin weights, and sometimes apothecary weights (as this has) or sometimes both. This trade card was over-written by a vicar, and dated 1841.

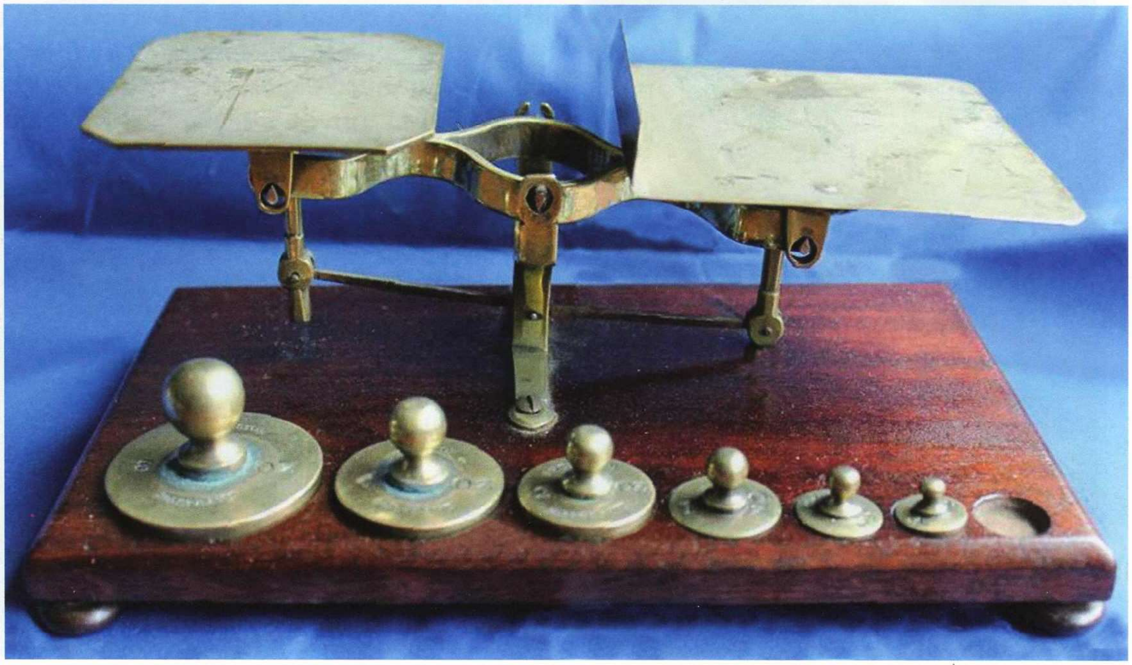


Figure 12. ➤➤ These very handsome postal scales were made between 1840 and 1846. They were the highest quality postal scales, and demonstrate clearly that Shenston was at the top end of the market, with customers who could afford the best. Courtesy Christine & Norman Biggs, ex-Chairman of ISASC Europe.

This design predated the normal design of postal robervals, (as made by Mordan and many other British makers). It had only one beam that bifurcated in the centre to give lateral stability, and bifurcated at each end to give stability to the plates, and also to give space for the legs to descend to the bottom linkage. The bottom linkage was made of thin iron strips. See Figure 13.

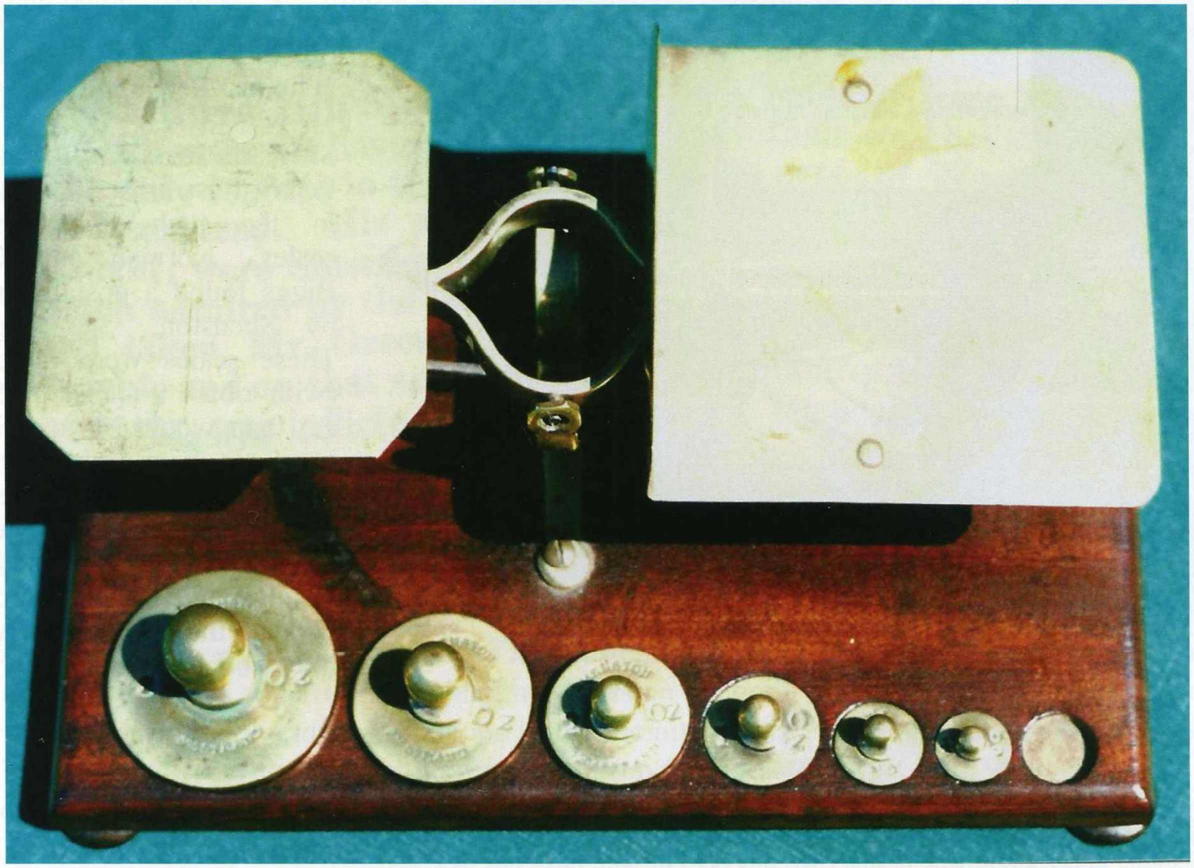
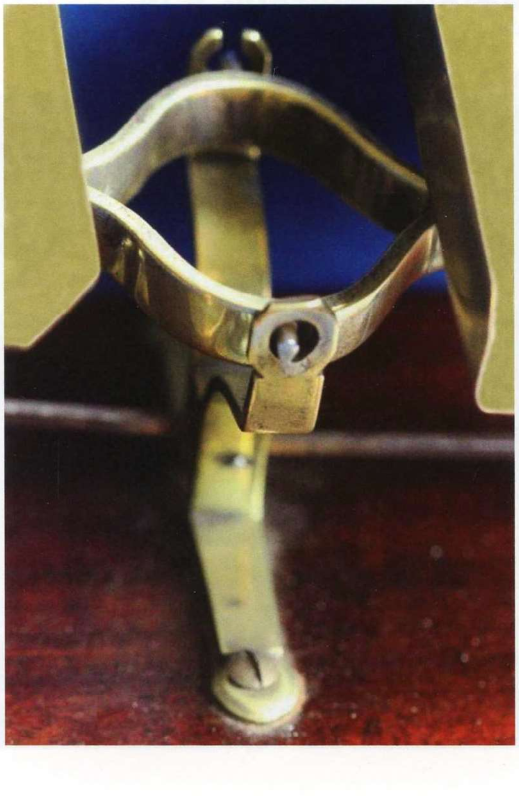


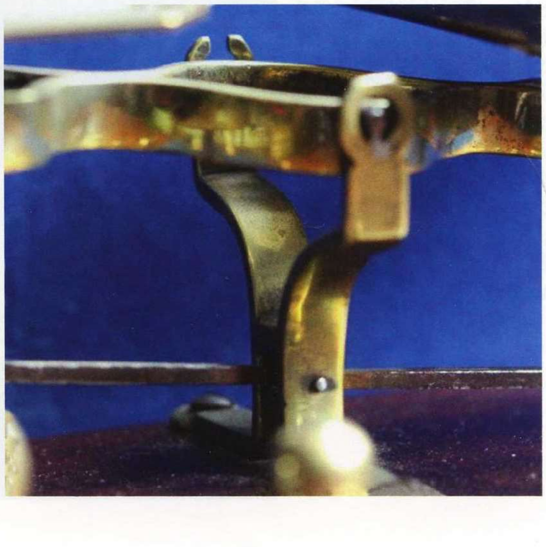
Figure 13. ⋀⋀ Showing the bifurcated beam and the neat row of weights.. The scale is not marked, but the weights do bear Shenston's name.



The pillar was also bifurcated to support the beam and split at the bottom to create straps that screwed to the base. See Figure 14. Note that the rear support was cup-shaped so that the beam could be removed or inserted by the owner. See Figure 15.

Figure 14. ≺≺ The bifurcated beam was made of thick straps of brass, making the whole scale at least 20% heavier than Mordan's postal robervals of similar size.

Figure 15. ≻≻ Showing the bifurcated pillar. Shenston solved the problem of the pillar swivelling by extending the straps that form the pillar out sideways, and screwing them to the base.



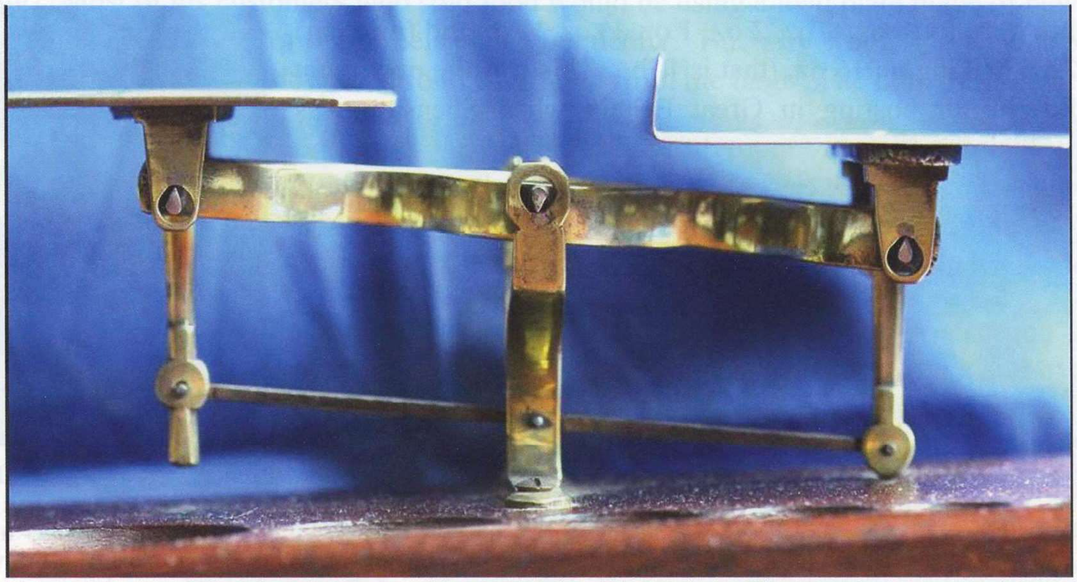


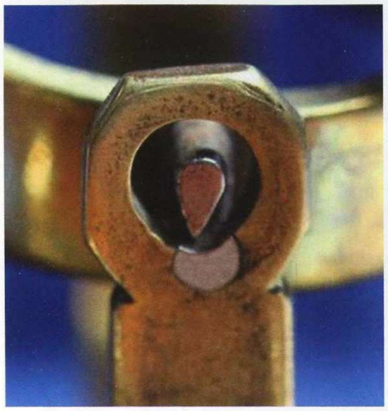
Figure 16. ⮝⮝ Showing the extended leg under the weight-plate. The brass beam was so highly polished that coloured objects in front of the scale are reflected on the beam.

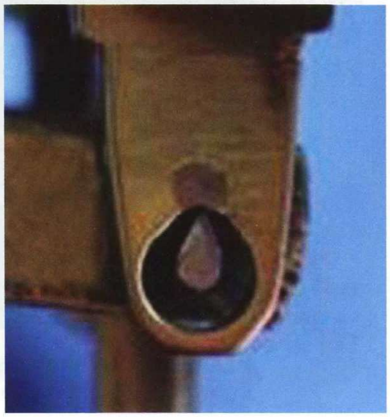
The leg below the weight plate extended beyond the bottom bearing, as this was an accelerating beam. See Figure 16.

Accelerating beams were used mostly on trade scales, but some postal scales had them if made before about 1850. The load had to be put onto the scale first. The beam remained tipped with the bottom of the leg under the load remaining on the base. When the correct weight was put onto the weight-plate, the beam tipped suddenly (ie. accelerated) and the extended leg under the weight dropped onto the base, making a knocking noise, and remaining tipped to the left.[7]

Vibrating beams replaced accelerating beams. The beams no longer tipped suddenly. They rocked gently, and often a pointer indicated that the beam was hovering in equilibrium.

Another unusual feature of Shenston's postal scale was the bearings. Most postal scales had a steel ring inserted into the beam on which rested the pippin steel knife, but Shenston drilled out a hole and inserted a fillet of steel on which the knife rocked. See Figure 17a & 17b.





Figures 17a & 17b. ⮜⮞ Showing the bearings made with steel fillets let into the brass. Pippin steel knives were so called because the profile of the steel was the shape of an apple pip.

The weights were for 8 oz, 4 oz, 2 oz, 1 oz, ½ oz, ¼ oz and (missing) another ¼ oz, making up 16 oz, (that is 1 lb). This was the maximum weight allowed for posting in Great Britain when Shenston was alive. Knobbed weights were more difficult to make than flat round weights with a rim, but were easier to pick up, especially if they were recessed into the base. They certainly made a very handsome set, that customers would appreciate. See Figure 18.

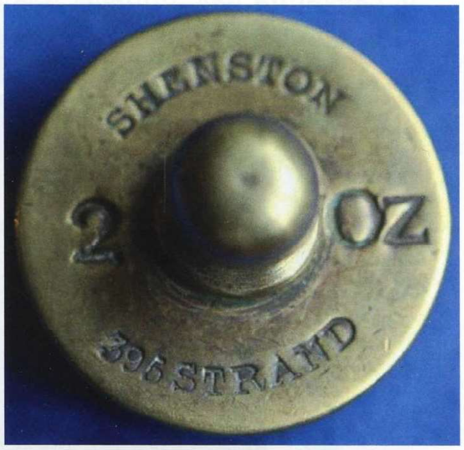


Figure 18. ⋀⋀ These attractive weights are unusual in having the address on them. Other makers occasionally put their town on, with their name, but not a precise street address.

The most unusual of his products was a tiny brass roberval in a locked box. See the Cover. It is analogous to the tiny iron one made by Payne. One tiny iron roberval is known by Robert Wenborn and one by Patston (probably Samuel Patston who started working in 1828), but their purpose is unknown. Why make special castings for such a tiny roberval, that was not nearly as accurate as an equal-arm beam made of much less material? Robervals had the advantage of easy access to the pans, but they had so many bearings they were not precise.

Why did Shenston make it out of brass, not iron? Figure 19. Initially, the assumption might be that it was for use where iron would create sparks, in places where gun-powder was used, but that cannot be correct as the central strut across the centre was made of iron and so were the straps across the bottom of the linkage (hidden in the base). Was brass used just to make it look delightful?

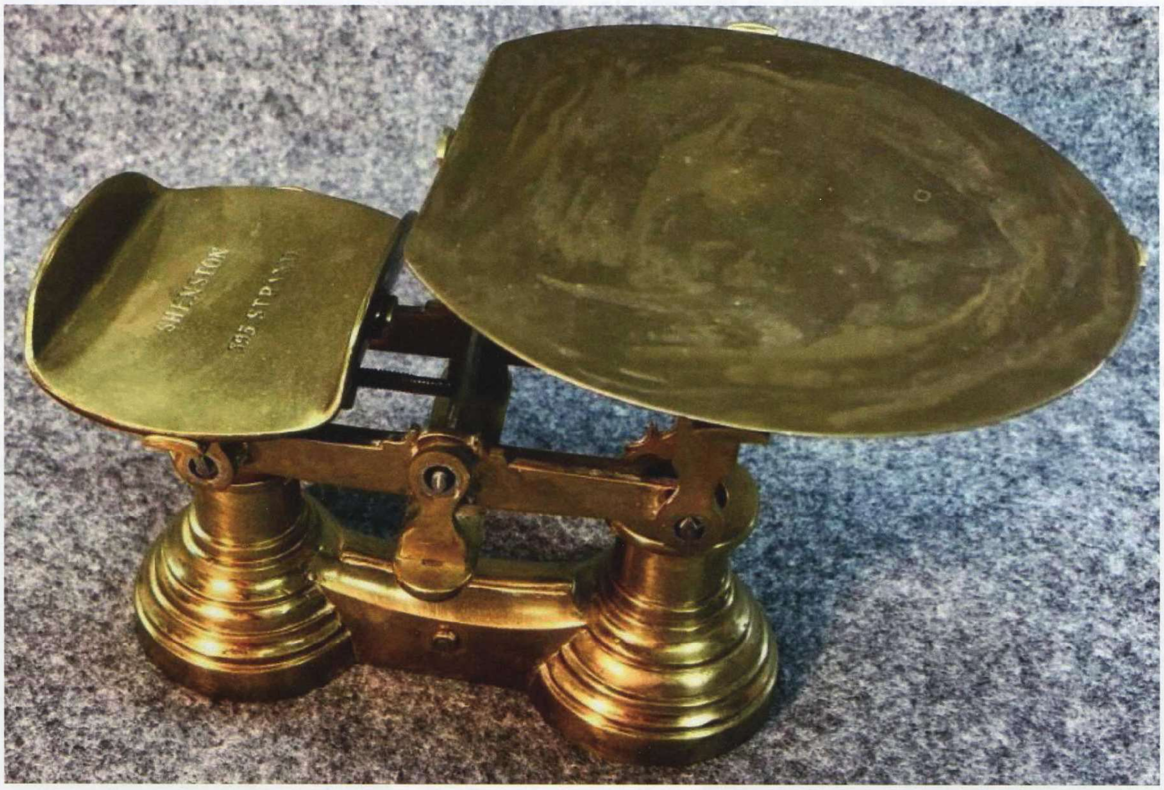


Figure 19. ⋀⋀ Shenston obviously made this tiny boxed scale for a specific purpose, but its use is not known. By bending up the edges of the weight-plate, he made it possible to drop the scale into the box.

Why did Shenston make both plates removable? Figure 20. Was he assuming that both plates would need washing? Most of his customers who sold food would be using a load plate made of pewter, brass or tin, and would need to wipe or wash their plates frequently. But why would the weight-plate need washing? Because it was lower down and food could drip from the large plate onto the weight-plate?

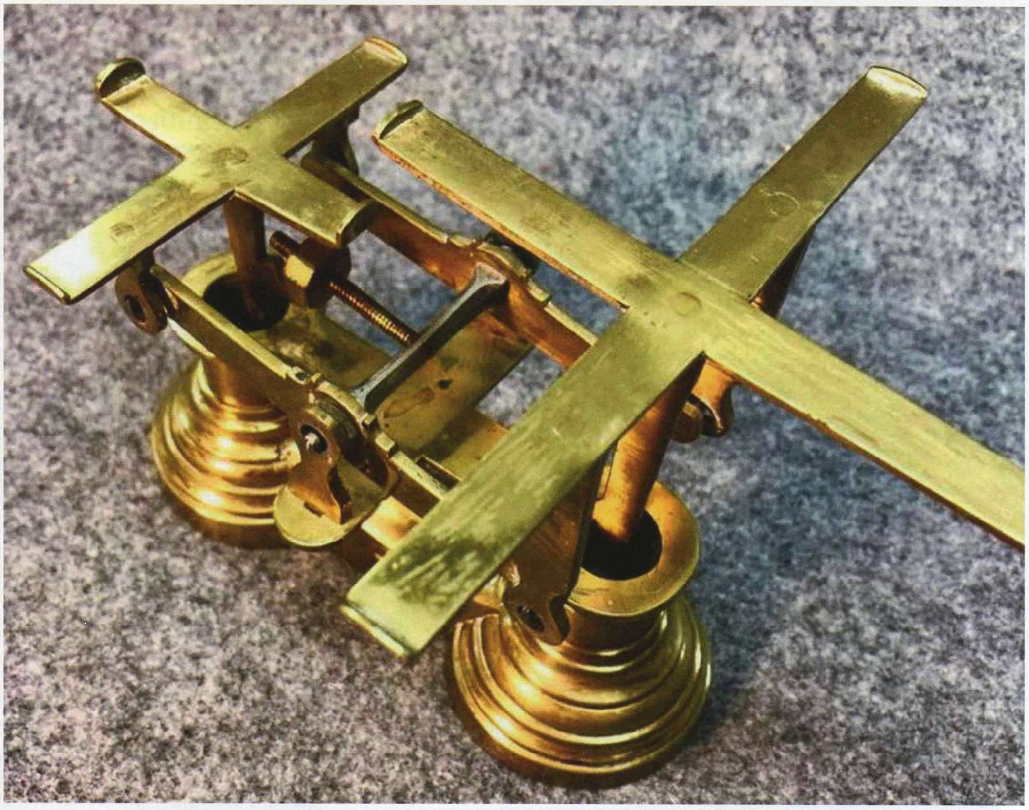
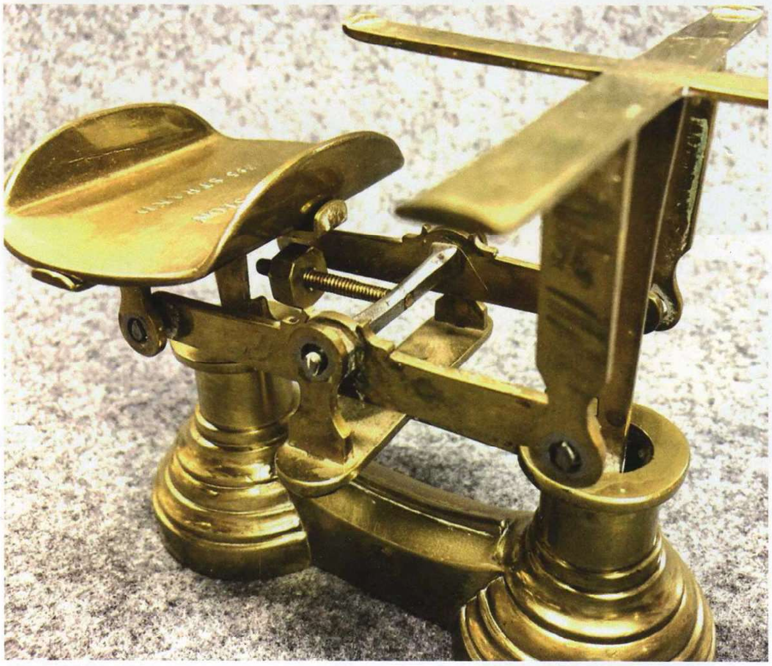


Figure 20. ➢➢ The robust construction is clearly visible, causing us to think about over-engineering. As a scale with a maximum capacity of 1 lb, the structure would only have ever had to support 2 lb, with 1 lb on each plate.

His design meant that he put chunky spiders to support each plate, adding to the amount of brass needed for making the scales. Comparing the amount of brass used by Shenston with that used by makers of early postal robervals of the same size, Shenston was using at least 20% more. Was this because he intended his roberval to be used by customers used to heavy trade scales?



Shenston devised a method of reducing the width of his tiny roberval to a mere five inches by raising the height of the load pan on long legs. Figure 21. This allowed the load pan to overlap the fulcrum. Then he folded the edges of the weight pan to reduce its width, but keeping the legs short so that it moved up and down below the load pan.

Figure 21. ≺≺ The extraordinary long legs under the load plate are three times as long as those under the weight plate. No wonder he had to compensate with the poise under the weight-plate!

To compensate for the heavier load pan and its legs, he attached a long screw to the weight pan side of the fulcrum with a poise to screw along it. This has not been seen on any other scales. He could have put a large amount of lead under the weight plate, to compensate for the difference, but maybe he did not want the removable plate to have unsightly lumps of lead seen by the customers, reminding them of arguments with Weights & Measures Inspectors checking their weights. Figure 22. If alternative plates were used, the poise could be moved along the screw to put the scale back into equilibrium.

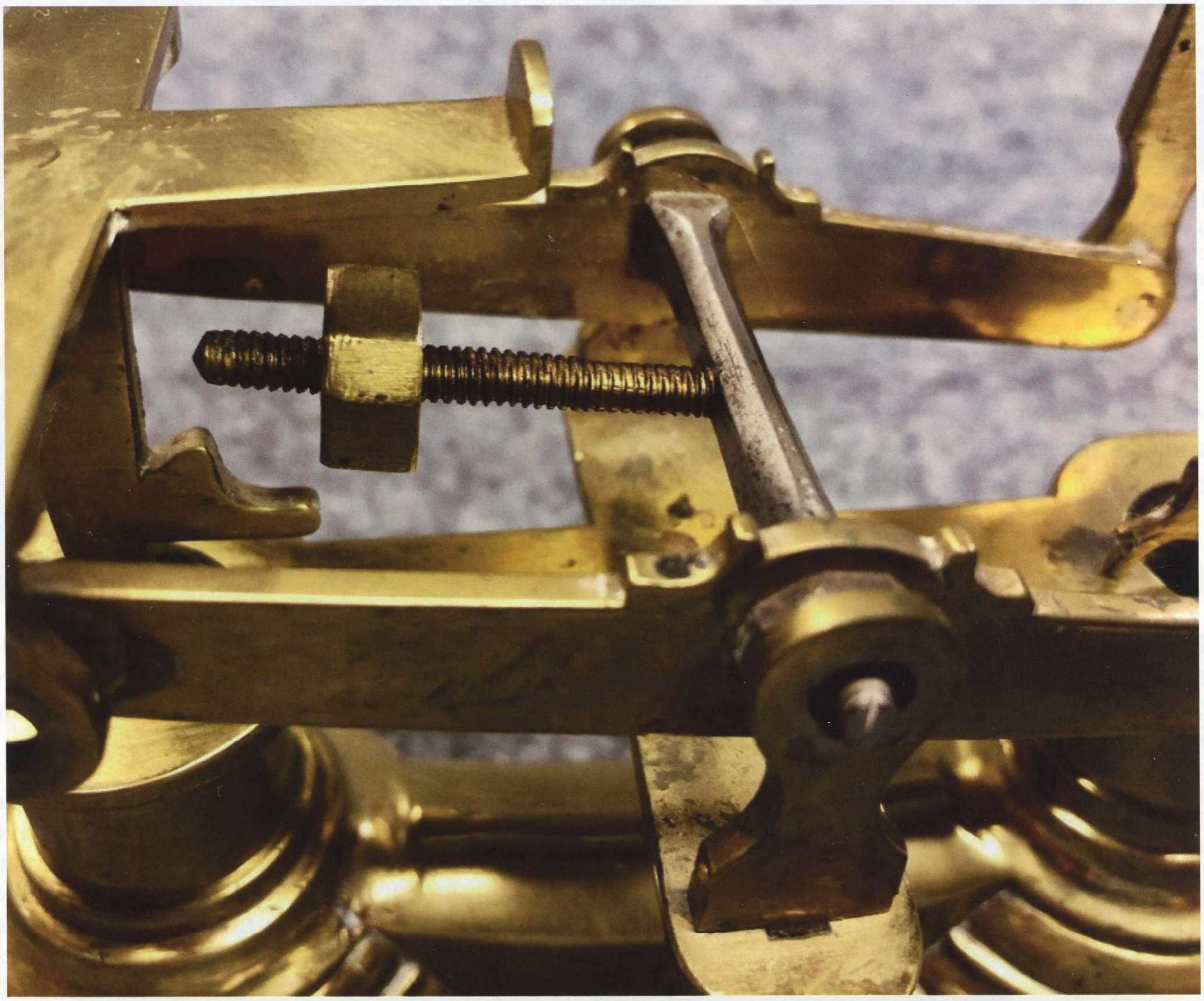


Figure 22. ▲▲ The screw was placed centrally on the cross bar, in a position where any customer could, if he was criminally minded, alter the position of the hexagonal nut. Any Weights & Measures Inspector would be horrified by this, but apparently no Inspector got near this scale, fortunately for collectors of rare scales!

Why was it in this chunky mahogany travelling box with a lock? See Figure 23. Was this a demonstration model carried round by a salesman? If it was, Shenston was intending to make lots of them, but no other one has been seen, as far as the authors know.

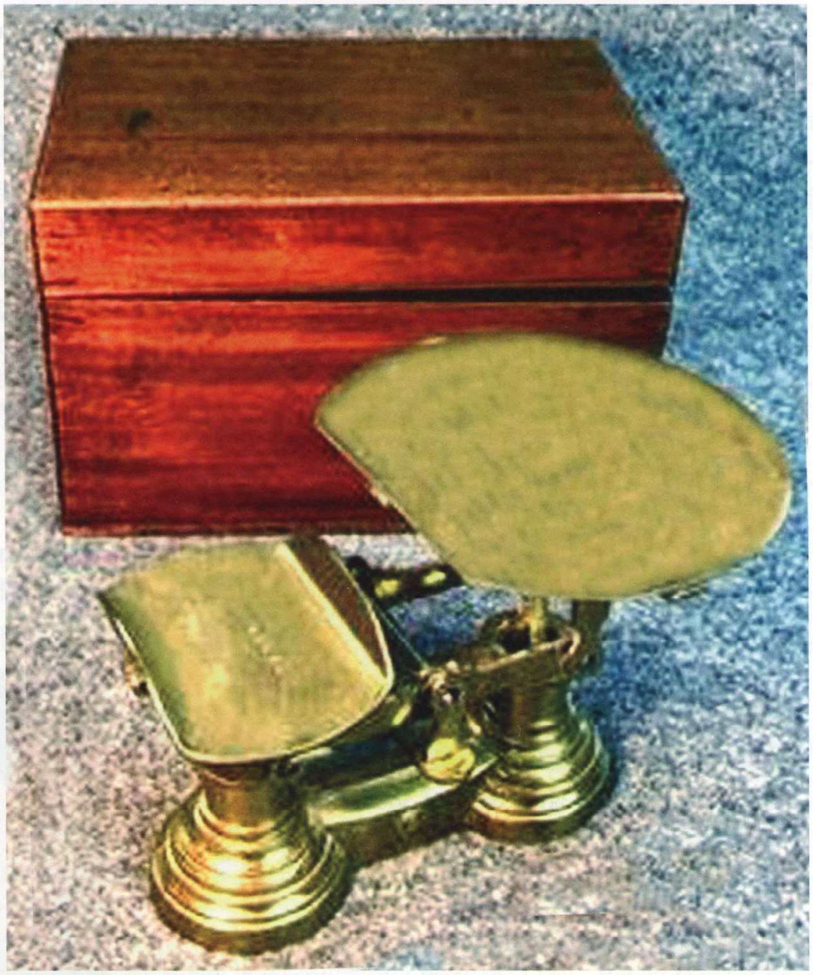


Figure 23. ➢➢ Although the scale packs neatly into the box, the box is quite awkward to pick up, needing two hands to do it safely. Why did Shenston not put a handle on the box? Very nice inset handles were available that, when laid flat, were flush with the surface of the wood.

To prevent the weights from jostling about in the box, he utilised the low weight pan. The weights were stored on the pan. When the lid was closed, the small felt pad in the lid pressed the large plate down, raising the weight-plate and the weights up very slightly, so that the weights were trapped against the lid and could not move at all. See Figure 24. As the original weights were missing, Gregg Motter had to experiment to ascertain the capacity of the scale. By stacking rather flat weights, it was possible to store an 8 oz, 4 oz, 2 oz, 1 oz and two ½ oz weights on the pan and still close the box. Thus the capacity was 16 oz, or 1 lb.

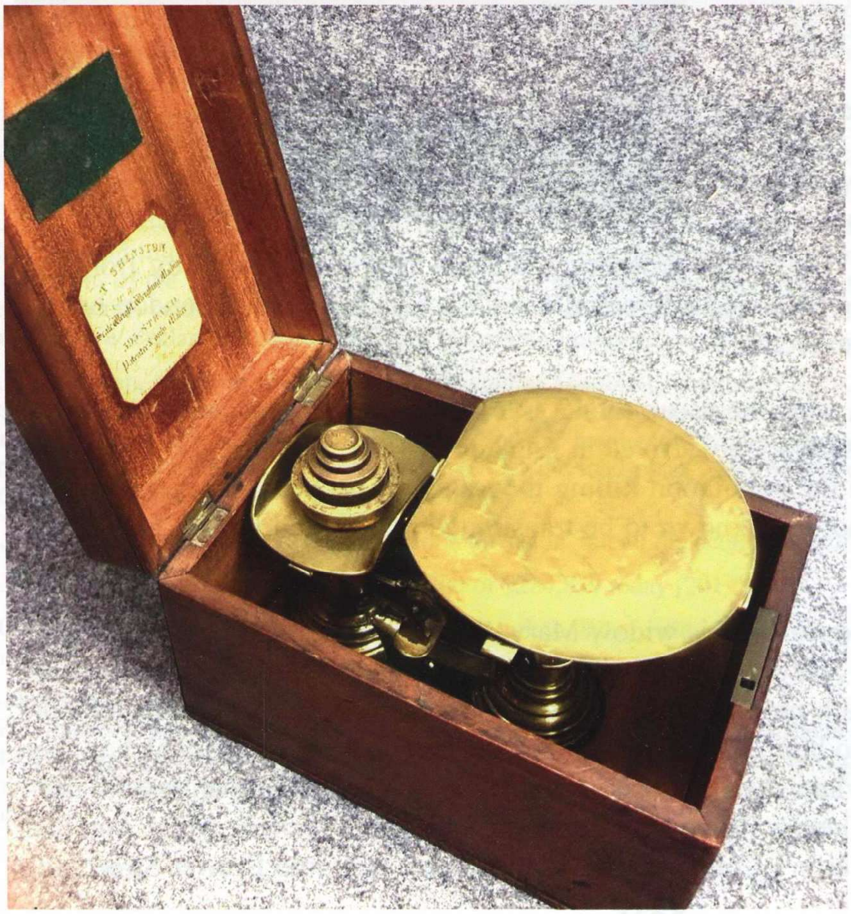


Figure 24. ≺≺ Gregg discovered that the weights fitted perfectly and did not rub against the label, missing it by a hair's breadth.

Considering Shenston's flattish weights, the possibility that they were cased was discussed. Cased weights had a much higher proportion of lead in them than ordinary brass weights (that had a smudge of lead for fine adjustments). Consequently, the cased weights were slightly smaller than solid brass weights. So could Shenston have used cased weights? Norman Biggs told us that "*Cased weights were explicitly permitted by Section XIII of the 1835 Weights and Measures Act. Nothing shall prevent the use of lead or pewter ... in the manufacture of weights if they be wholly and substantially cased with brass, copper or iron and legibly stamped or marked "cased"*".

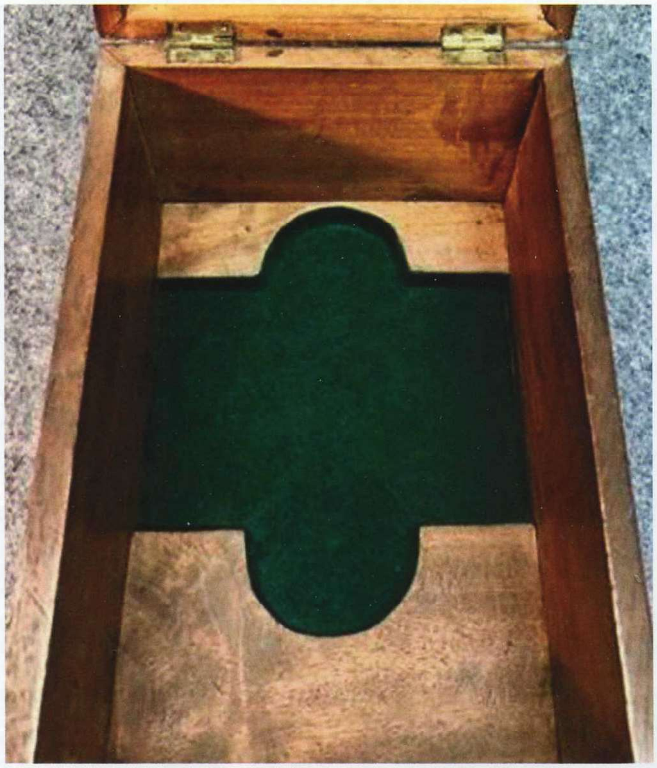


Figure 25. ⮝⮝ The base of the box has a cut-away wooden frame that prevents any movement of the brass casing. Shenston did not want the slightest rattle on its travels.

To make cased weights, a cup of brass was made, filled with lead, and capped with brass. The weight was adjusted by filing the brass, and stamped "CASED". As the lead was soft, the stamp sank deeply into the brass cap if the stamper was not careful. Postal scales are known with cased weights, but it seems unlikely that Shenston would have used cased weights on such a well-made tiny roberval.

To prevent the heavy base of the roberval from shifting in the box, Shenston cut wooden brackets to lie in the bottom of the box. See Figure 25.

Shenston was going from strength to strength. He was ambitious. He was in the perfect shop to attract customers. See Figure 26.

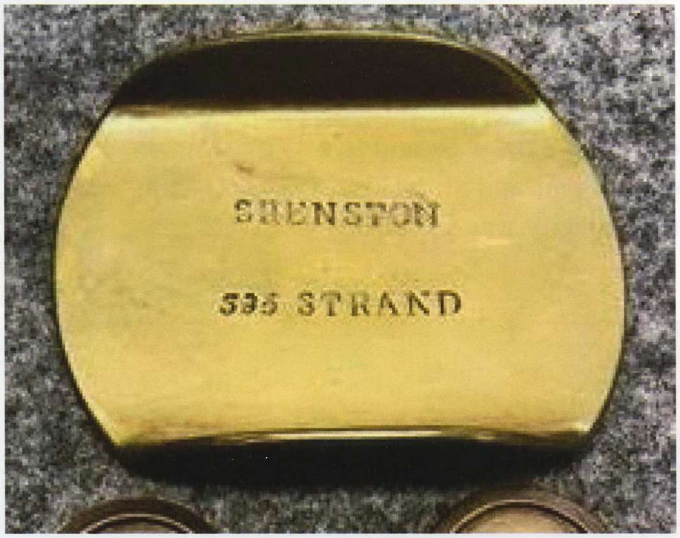


Figure 26. ➢➢ Stamped on the weight plate SHENSTON 395 STRAND. He was proud of his work. He wanted customers to return for more scales.

In 1841, the Census recorded that James & Mary Ann Shenston[8] were living at Elder Road, St Mary's Parish, Lambeth, with Mary Ann's father, Joseph Garbanati (aged 60) and Joseph's illegitimate son James, aged just two years. They were prospering, able to afford a house away from the hurly-burly of the Strand. James would have had a three mile walk across the City of London but he was young enough to benefit from that exercise.

James Templar Shenston died in 1846, when he was only 45. No cause of death has been found, but Londoners were suffering from a disease that only arrived in England in 1831, cholera. As people had no immunity to it, cholera ran through the population killing thousands of people. Another common cause of death was typhoid, that was not then known to be transmitted by infected water. Life in big cities was a gamble!

His Will has not survived (if he wrote one), but his widow Mary Ann tried to run the business, whilst caring for her two little girls, aged two and one, and possibly her half-brother James, then seven years old. She had not dealt with James' death properly, and was taken to Court by Benjamin Payne, who was trying to retrieve the £200 owing to him[9]. She pleaded that she had no money with which to pay Payne, but because she filed the papers late, the Court case became very complicated with several lawyers arguing the rights and wrongs. Whether Payne ever got his money is not known. Mary Ann had moved north out of the City, into St Martin's Court, off St Martin's Lane, then into Brewer Street, addresses that suggest a poor clientele.

Postscript. The shop in the Strand was taken by Patrick Adie, of the Edinburgh family of mathematical instrument makers, where he prospered for 20 years. Benjamin Payne settled in Monken Hadley, Barnett, then a quiet country village north of London, but now inside the M25. Joseph Garbanati lived until 1852, so perhaps helped to bring up his granddaughters and finance his daughter Mary Ann Shenston. Mary Ann herself lived at Little Brook Street, Munster Park, Fulham, in a little terrace house until she died in 1860, leaving just £74 to her daughters[10], Maria Susan (who immediately married George Gough Gardner), and to Mary Ann Amelia (who immediately married John Williamson).

So is this ending sad or contented? It echoes the vicissitudes of many people in the 19th century, when London was the city of opportunity and the city of death.

If any reader can add to our knowledge about Shenston or about tiny robervals, please contact Gregg Motter <sail1070@yahoo.com>

Endnotes:

1. £25 in 1817 equates to £20,200 in today's money. The money probably covered his superior accommodation, and probably superior training. Some apprentices paid nothing, some paid £5 or £10. The contract for the apprenticeship did not explain the varied fees.

2. Blacksmiths' Company was one of many Guilds in the City of London that protected the rights and responsibilities of its members. Blacksmiths' Co. started as a Guild for men working with iron, making tools and iron clocks, but developed into a Guild including their sons regardless of the trade followed by the sons. By the 18th century most men in the Guild were blacksmiths, including the majority of scale-makers. Other Guilds had scale-makers, (eg. Haberdashers' Co.) as some apprentices took their freedom in the Guild of their Master or their father.

3. Hatton Garden was known for the large number of diamond cutters and diamond merchants, so scale-makers had ready customers for their diamond scales that could be used to weigh any precious or semi-precious stones.

4. B Zorina Khan states in his Economic History of Patent Institutions *The British patent system established significant barriers in the form of prohibitively high costs that limited access to property rights in invention to a privileged few. Patent fees for England alone [ie not including Scotland or Ireland] amounted to £100-£120, or approximately four times per capita income in 1860......patent applications in England had to pass through seven offices, from the Home Secretary to the Lord Chancellor, and twice required the signature of the Sovereign.*

5. Hogsheads were particularly large coopered barrels of varying dimensions, according to which trade was using them. When stuffed with tobacco they weighed about 1,000 lb. If filled with wine, according to the type of wine, around 46 Imperial Gallons weighing about 386 lb. They were also used for shipping sugar from the West Indies.

6. Wikipedia staes that "In 1840 the Treaty of Waitangi was signed between the British Crown & various Maori chiefs, bringing New Zealand into the British Empire & giving Maori the same rights as British subjects. However, disputes over the differing translations of the Treaty & settler desire to acquire land from the Maori led to the New Zealand Wars from 1843. There was extensive British settlement throughout the rest of the century...and the imposition of a European economic & legal system led to most of New Zealand's land passing from Maori into European ownership, & most Maori subsequently becoming impoverished.

7. G A Owen, in his book *A Treatise on Weighing Machines*, published in 1922, states that there were several ways of creating acceleration, (not that he approved of these unstable instruments) including making the tip of the end bearings very slightly higher than the tip on the centre fulcrum bearing and by having the centre of gravity of the whole beam slightly above the fulcrum. Shenston used this method. Alternatively, the load-plate could be made fractional heavier than the weight-plate, but we could not discover whether Shenston had done that.

8. The 1841 Census wrote the name as John Shenston, but all the details fit with his being 'our' James.

9. £200 then was the equivalent of £236,200 or $284,859 today (2019).

10. £74 in 1860 was the equivalent of £73,600 today. Where did all that money come from? Did she inherit money from her father?

Acknowledgements:
With thanks to Janet Scarratt, the late John Lound, staff of the MHSO, Norman & Christine Biggs, the late John Millburn, Meron of BIPC@Bl.uk and Andrew Crawforth. This article was written because Gregg Motter and I had long discussions about his tiny roberval and about James Templar Shenston. It would not have been written without his enthusiasm and his excellent photography.

Making the Grade

BY JOHN KNIGHTS

There are some 20 billion chickens in the world and they are the creature most exploited and abused by man. We imprison them in tiny boxes, murder their newly born offspring, eat them by the tonne and consume their eggs.

Next time you chew on a greasy goujon [strip in US] however, reflect that chickens are descended from dinosaurs and one day they will surely rise up and kill us all.

Compared to some other countries, weight grading of eggs has, in the UK always been a bit complicated. In Britain, commercial weighing was considered a serious matter and Christmas cracker style devices were not to be countenanced when money was involved, despite what went on elsewhere.

Certain 'domestic' grading devices were made in the UK by companies such as Salter but they became unacceptable for trade use once egg grading devices became subject to pattern approval in 1942 (during the midst of World War 2! What were they thinking?)

Small scale egg producers therefore found it difficult to find suitable and affordable devices that could be legally employed in checking the weight of their produce. Those aforementioned, unapproved domestic instruments were, however probably used illegally in quiet country places.

The need to grade eggs in the UK dates back to 1928 when marketing standards were introduced for various agricultural products including hens' and ducks' eggs. The standards denoted various marketing classes for produce, depending upon the quality, shape, size etc. This was probably the beginning of the general 'carpet biting' that later came about when certain people began to moan about European rules concerning curly cucumbers and exotically shaped carrots. Such requirements actually dated back to the British Ministry of Agriculture requirements of some 40 years before the UK joined the EEC.

Eggs were graded by quality (eg. freshness) and by weight. Originally there were 5 recognised weight grades. These were, Special (2¼ oz and above), Standard (2 - 2¼ oz), Medium (1¾ - 2 oz), Pullet (1½ - 1¾ oz) and Small (less than 1½ oz).

To allow producers to apply these standards, weighing machine manufacturers began to market devices that would put eggs into the appropriate weight grade at the time they were packed. A number of makers submitted their machines for pattern approval despite the fact that no formal regulation of the equipment occurred for several years.

For the larger packing stations, automated devices were produced but there was less attention paid to the need of the smaller producer who needed a cheaper device that allowed eggs to be efficiently graded manually. A few such trade approved devices were marketed but they were comparatively expensive and didn't really find great favour among farmers.

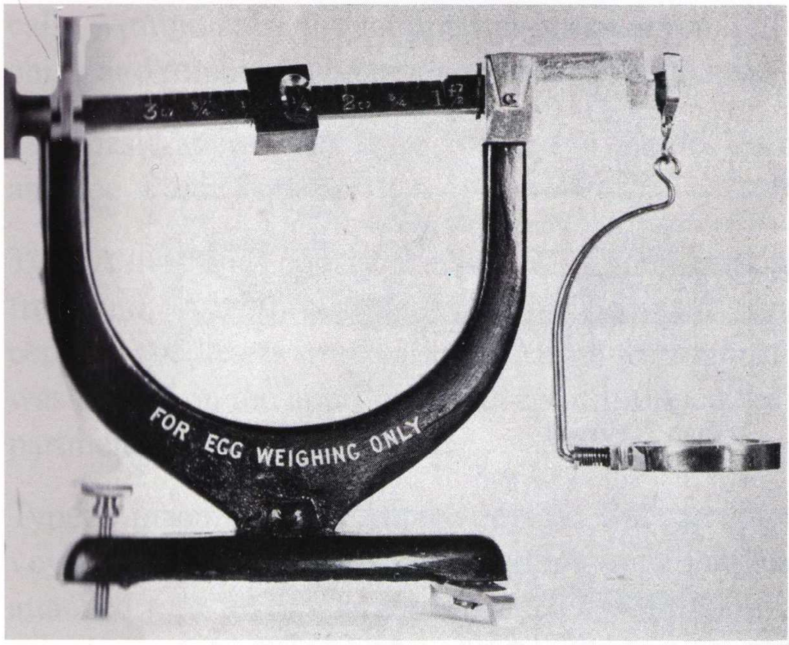


Fig. 1. ⮝⮝

The London scale maker W. A. Webb produced a small steelyard device, specifically for egg grading (Fig.1). This was a well made instrument as would be expected from a company who normally made beam scales and counter machines but it was probably of limited use for the commercial grading of eggs. It was graduated only in ounces and the poise would have to be adjusted each time an egg was put in the receptor. This would have been fiddly and slow when numbers of eggs were being graded.

Another machine was produced by J.J. Siddons in 1931 (Fig.2). This was a self indicating device so it immediately showed the weight of the egg. It was however, still graduated in ounces so the user would have to know which grade was indicated by the weight. It could only effectively be used therefore, by an experienced operative.

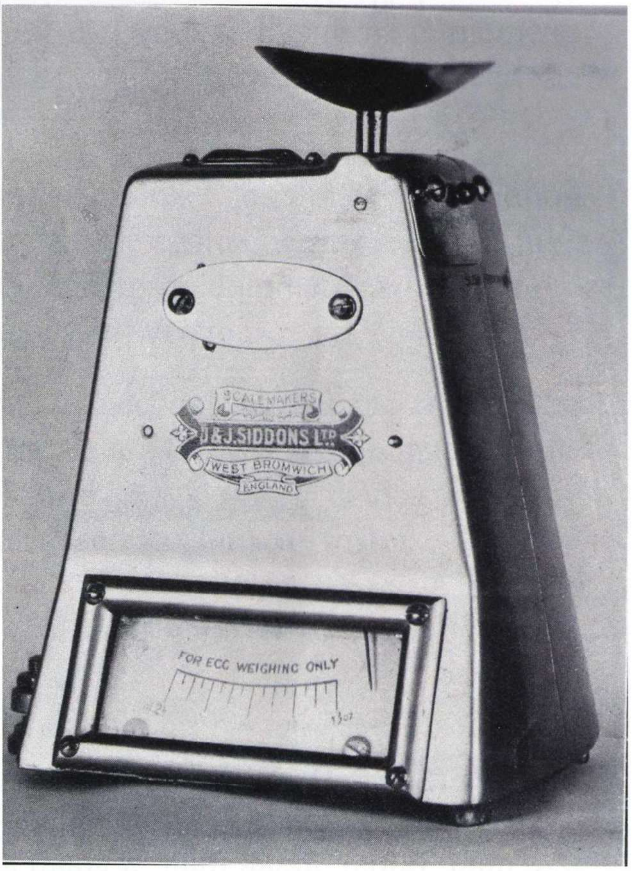


Fig. 2. ➤➤

A device marketed by the firm of Nelco Ltd, in 1937 (Fig. 3) appeared to be rather more useful. This was not a conventional scale in that it consisted of a counterweighted arm pivoted on a spindle in ball races. It had an egg receptor on one end and a counterweight on the other. In addition, there were four weighted arms which were picked up in turn as the main lever dipped under the weight of the egg. Each lever closed an electrical connection when it was picked up. Each such contact caused one of four lights, on a display panel to illuminate, and the previously lit lamp to extinguish.

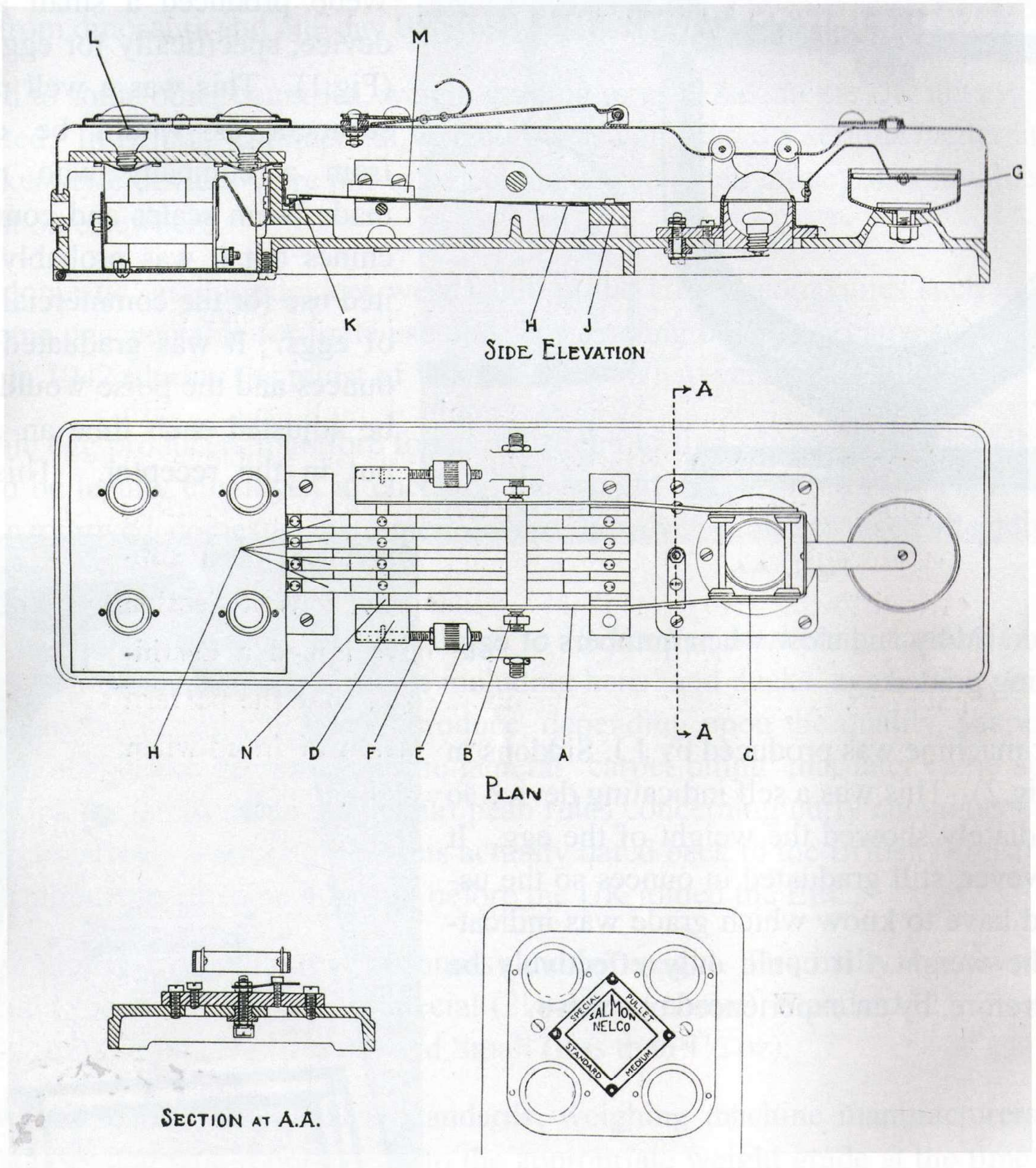


Fig. 3.

A heavy (Special) egg would pick up all four arms and a Small egg would not tip the arm at all. In this way a Special would show a blue light, Standard, a red light, Medium, yellow light, Pullet, green light. A small egg would not illuminate any of the lamps.

It looks like a very useful device for the small producer but I have never seen one and suspect it was not widely sold. There is no photograph of the device in the approval document and only line diagrams are available.

The major activity however, was the production of devices which could grade automatically with human intervention being restricted to loading the ungraded eggs onto the machine and removing the graded output from the trays.

Two basic approaches were adopted in the design of graders, which later became known as Type A and Type B.

Type A machines consisted of a row of counterweighted levers with an egg receptor at the front end. A reciprocating feeder bar operated so as to deposit an egg in turn on each receptor. The levers were calibrated from the highest weight to the lowest and when the egg was placed on the appropriate receptor it tipped the lever and the egg dropped into a compartment relevant to that grade.

Type B machines were rotary devices and the eggs were fed onto the machine by a conveyor belt. Each egg was dropped into a cup at the beginning of the cycle. This cup was attached to a lever counter balanced for the highest weight grade. As the cup travelled round, incremental weights were added to the lever to increase the turning moment. When the weight of the egg plus the deposited weights was sufficient to tip the lever, the egg was dropped into the compartment corresponding to that grade.

Whilst modern graders are bigger and incorporate more features to automate the handling of the eggs before and after grading, it is noticeable that the basic design of the machine has not really changed. The Type A machine now seems to predominate as it is a more straightforward design and less problematical than the rotary version.

Various manufacturers produced rather similar looking mechanisms but the two makes mainly encountered in the 1960's and 1970's were the 'Ben Nevis' machine made by the Newman Hender Company of Trowbridge in Wiltshire and a rotary device made by Brecknell, Dolman and Rogers (AKA Brecknell, Munro and Rogers) of Bristol.

The 'Ben Nevis' machine was a Type A grader with a set of weighing levers fed by a power operated belt. The pattern was originally developed by another Trowbridge engineering business called Hiscocks and marketed in 1936 (Fig. 4). The design was later acquired by the Newman Hender business who went on to develop the machine and increase the capacity by adding more feed tracks and sets of grading levers.

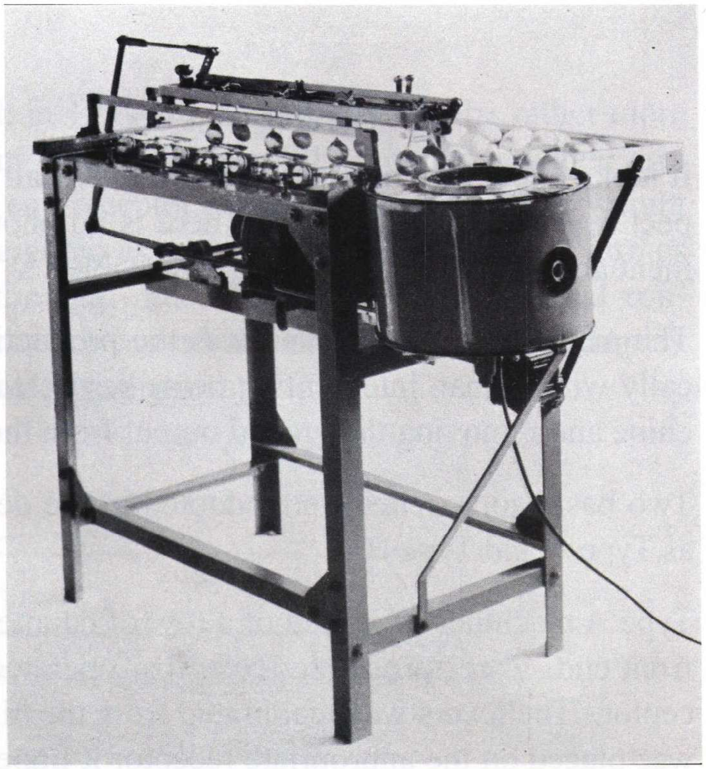


Fig. 4.

The type B machine was developed about the same time by various engineering businesses. A particularly elaborate device, approved in 1935, was the work of a company called Joseph T Robin of Streatham in London (Fig.5). Like other early devices it appears to exhibit a degree of complication which, I suspect resulted in ultimate unreliability. Machines produced by Brecknell, Munro and Rodgers, later Brecknell, Doleman and Rogers, had a more simple and robust egg weighing unit (Figs, 6 + 7), devoid of the multifarious dangly bits of their contemporaries. This is probably why, in the 1960s, when I encountered egg grading machines the Type B machines from the Bristol company seemed to be the only ones found in commercial use.

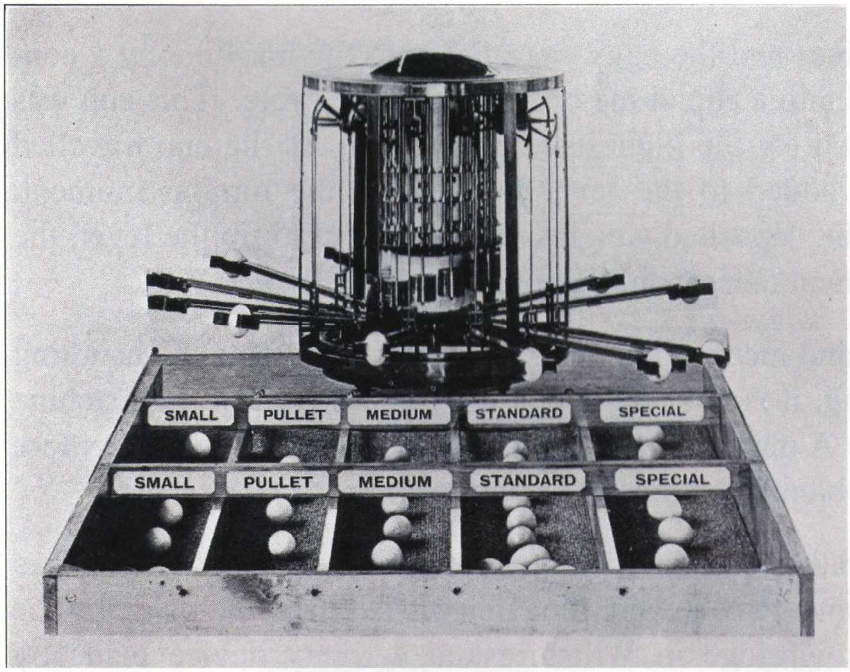


Fig. 5.

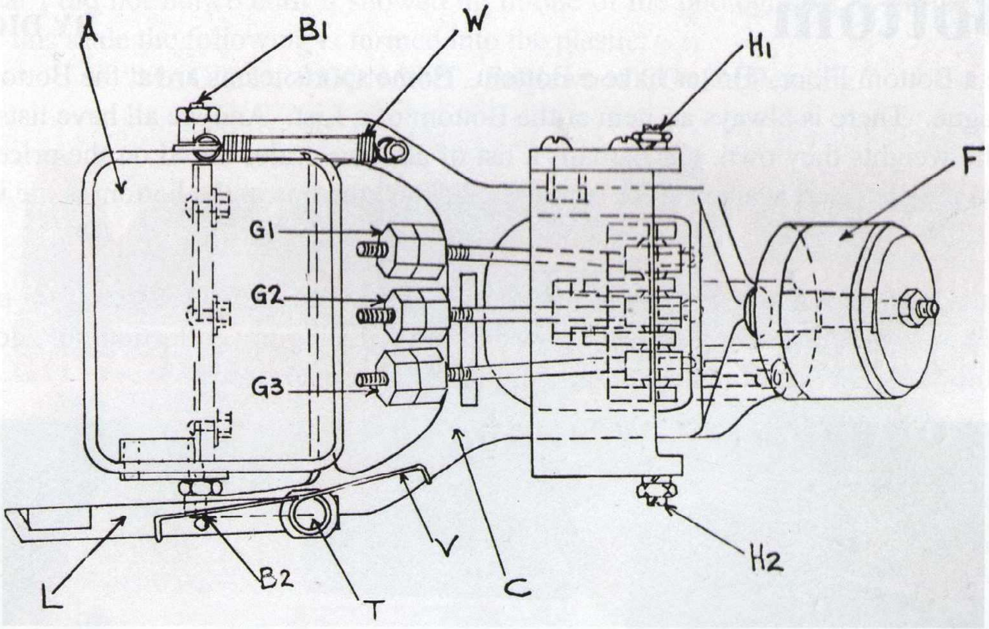


Fig. 6. △△

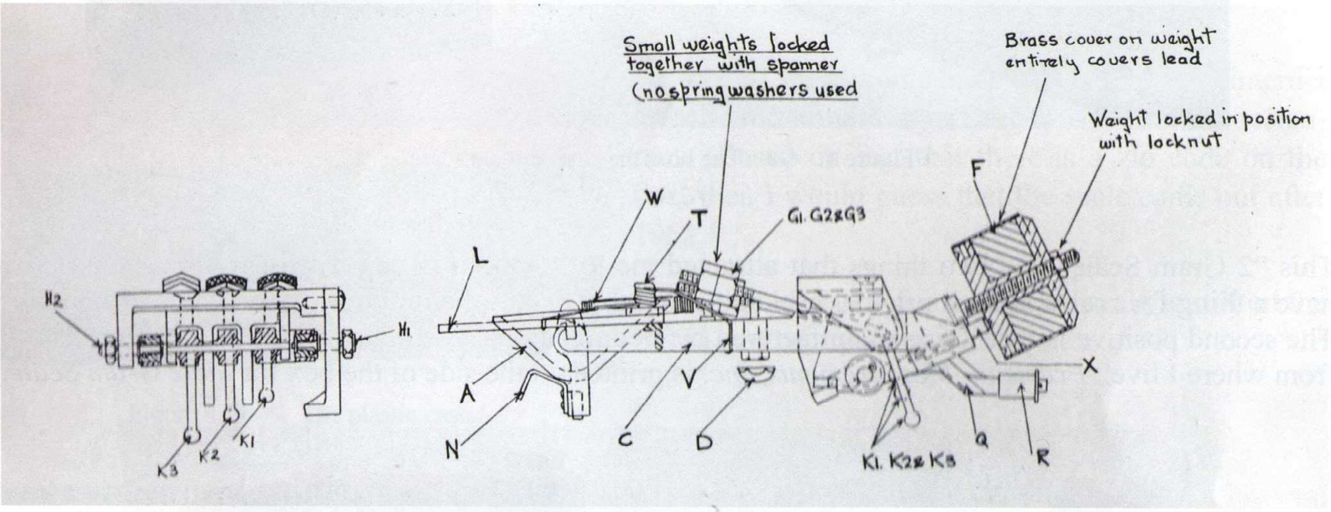

Small weights locked together with spanner (no spring washers used
Brass cover on weight entirely covers lead
Weight locked in position with locknut
F
W
T
G1, G2&G3
L
H2
H1
A
N
V
C
D
X
K1, K2& K3
Q
R
K3
K2
K1

Fig. 7. △△

The law relating to egg grading in the UK changed in the 1970s and the machines were no longer subject to official test. The emphasis changed to having officials visit the packing houses and sample the output of the lines to ensure that eggs had been correctly graded.

Thus inspectors were thence forth denied the joys of having to insert their hands into rapidly rotating and reciprocating machinery to deposit test poises, while the Health and Safety Officer looked on in horror.

The Bottom

BY DICK CLARK

Buildings have a Bottom Floor. Boxes have a Bottom. Some sports teams are at the Bottom of the rankings in their league. There is always an item at the Bottom of a List. And we all have lists. Scalies may have a list of the weights they own. Or perhaps a list of all their scales based on the price they paid for the item. Or maybe their best scale is at the top of the list and the one at the bottom is the worst one they own.

I have one, that is without a doubt, the one at the bottom of my list and I purchased it for only $10 about a month ago. I am in the time of my collecting when I am reducing my collection not adding more. So why did I buy the "2 Gram Scale" in an Antique Mall in Hillsboro, Oregon?

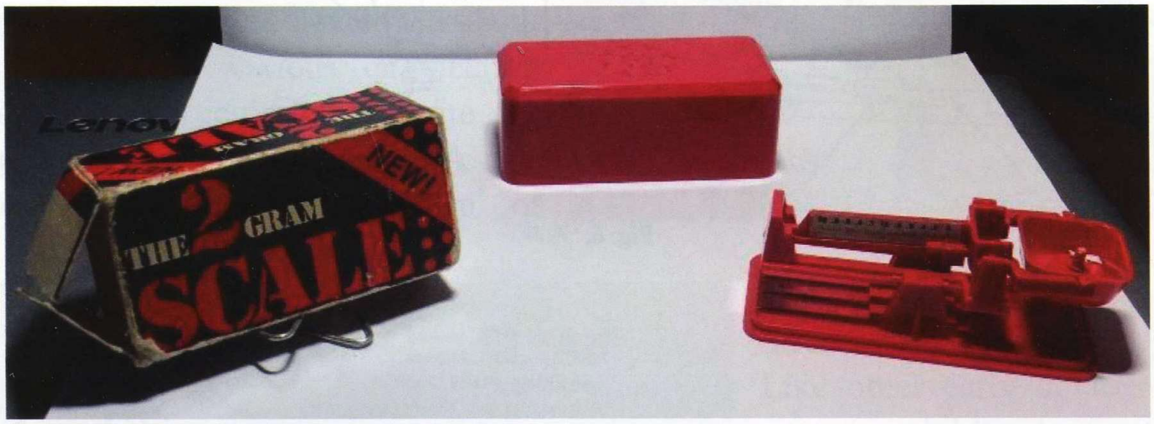


Figure 1. △△ The box, the case and the scale.

This "2 Gram Scale" had two things that attracted me to it: One was that it was in the original box. I have a thing for scales in their original packaging and this makes the third one that is in the original box. The second positive is that it was manufactured by a company in Westminster, Colorado, about 25 miles from where I live. *Precision Measurements, Inc.* is printed on the side of the box for *the 2 Gram Scale*.

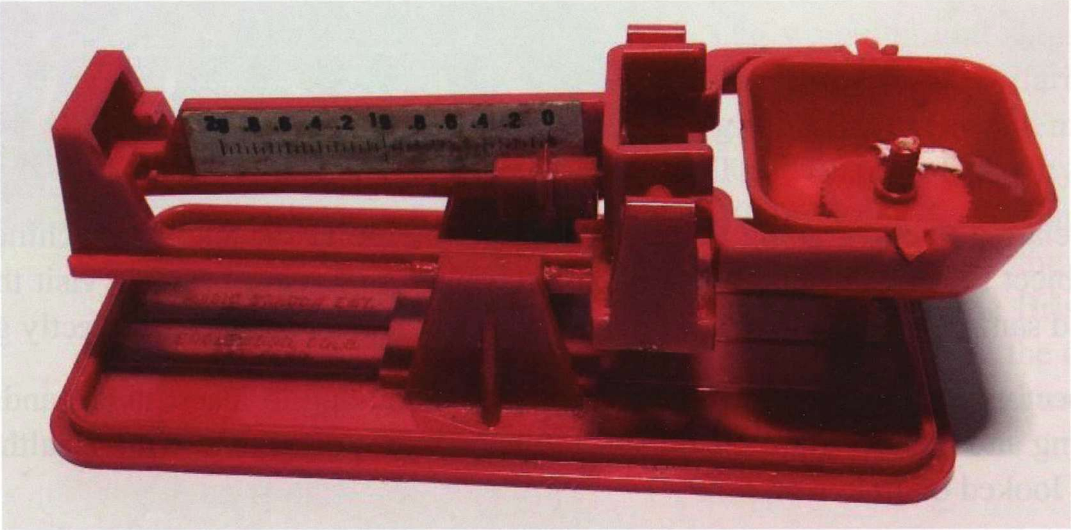


Figure 2. △△ The two gram scale.

Something that I did not notice until it showed up in one of the photographs, is on the top side of the base plate for this scale the following is formed into the plastic:

"MAGIC DRAGON ENT. Englewood CO Pat Pending."

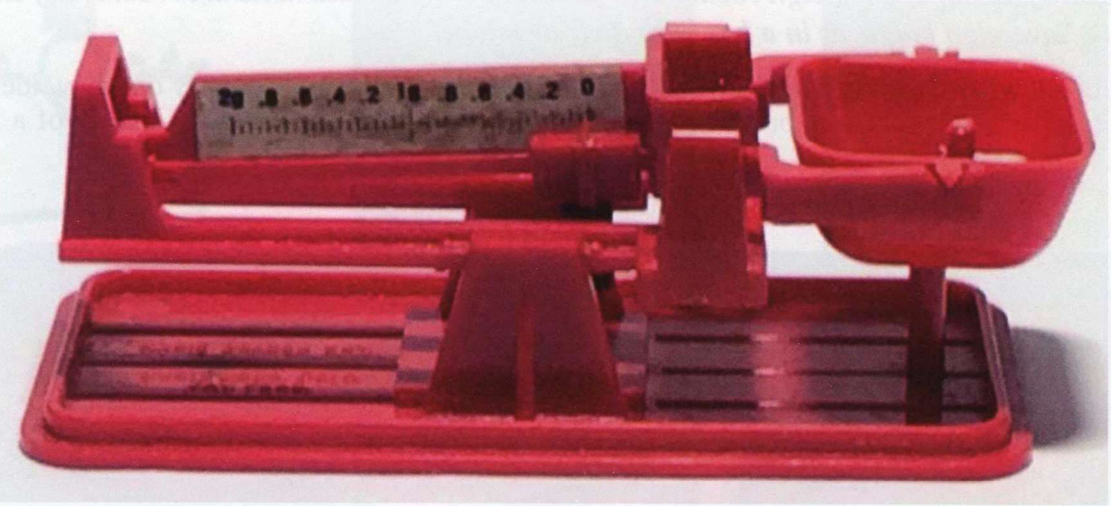


Figure 3. ⩓⩓ Closeup of the beam and calibration.

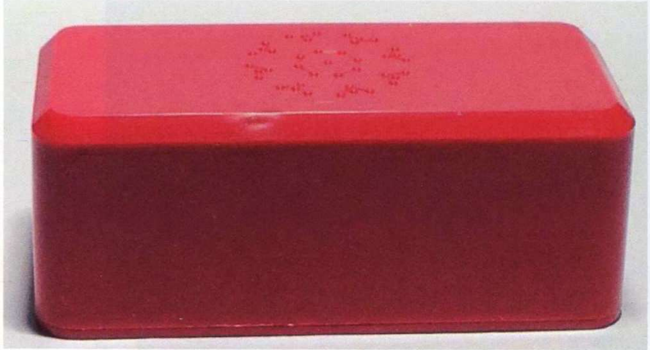


Figure 4. ⩓⩓ The plastic case.

Neither of these companies show up on an internet search unless the Magic Dragon is a Chinese restaurant. Based on fact that there is a zip code on the box, then I would guess that the scale came out after 1963.

Even with all this information, the scale is still on the BOTTOM of my list.

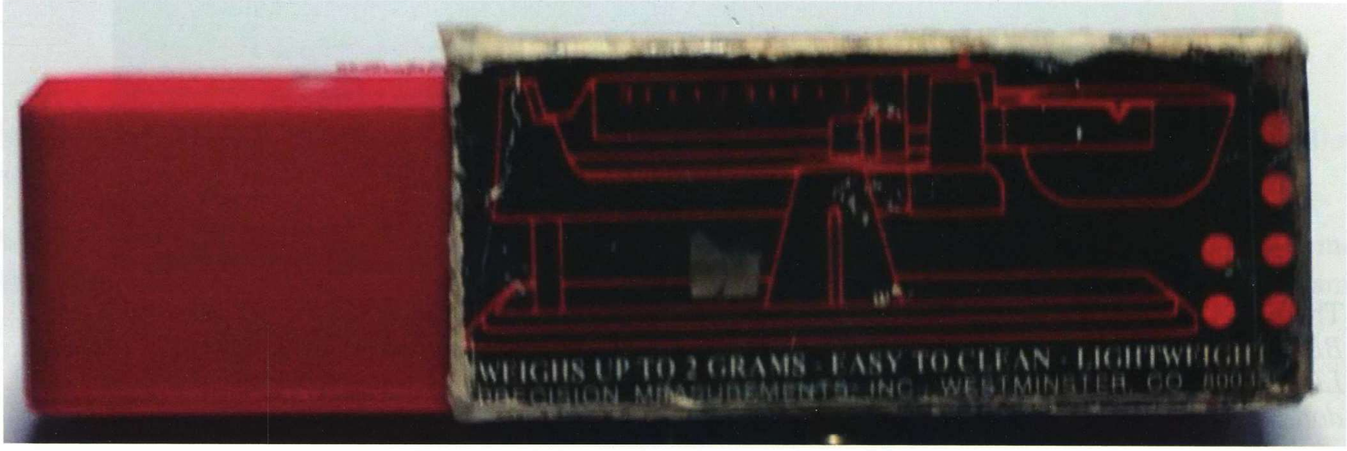

WEIGHS UP TO 2 GRAMS · EASY TO CLEAN · LIGHTWEIGHT
PRECISION MEASUREMENTS, INC., WESTMINSTER, CO

Figure 5. ⩓⩓ The case and the side of the box.

William Blews & Sons, on the Box

BY MICHAEL FOSTER

***William Blews & Sons, Sovereign rocker and Standard Weights and Measures Makers of Birmingham, sold Sovereign balances in a box with their own label*.**

A William Blews & Sons box with sovereign rocker, Figure 1 appeared recently on eBay, identifying the maker of a rocker that was previously listed by the author in his eBook as simply of a Mordan Style by an unknown maker:

The Sovereign rocker:

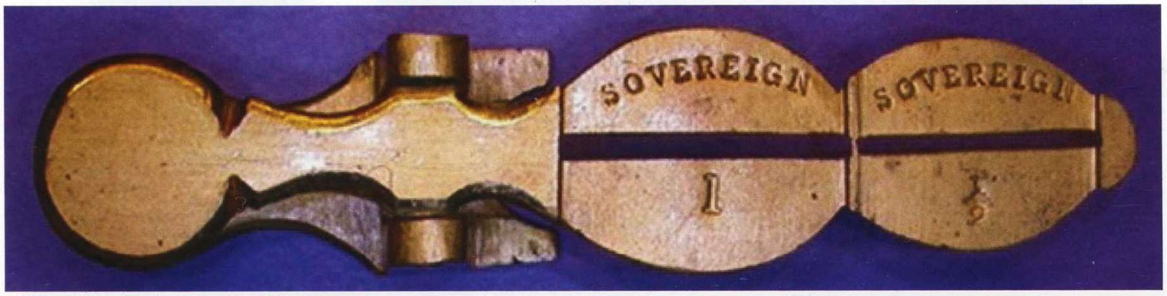
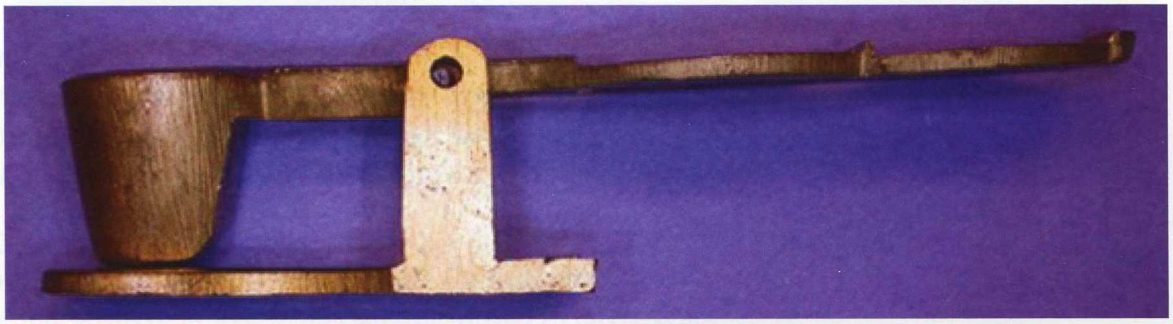
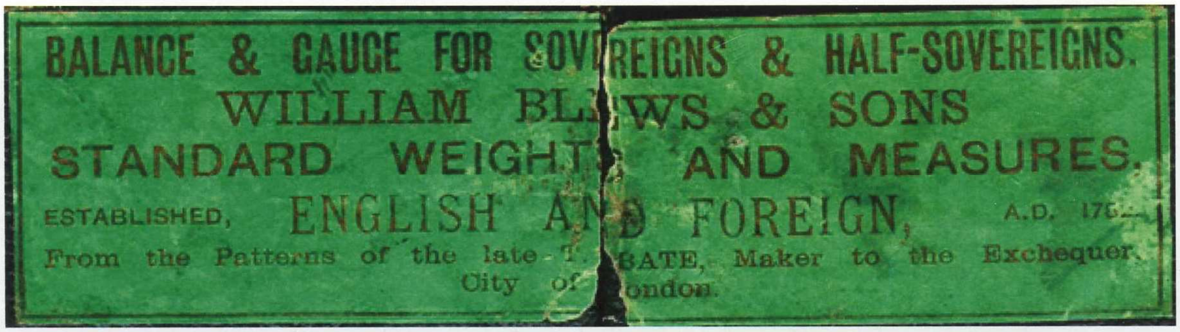


Figure 1. ⮝⮟ William Blews & Sons rocker



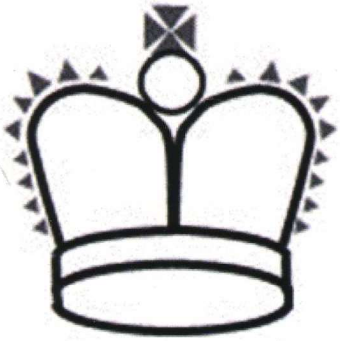
was presented with this box and label:



BALANCE & GAUGE FOR SOVEREIGNS & HALF-SOVEREIGNS.
WILLIAM BLEWS & SONS
STANDARD WEIGHTS AND MEASURES.
ESTABLISHED, ENGLISH AND FOREIGN, A.D. 17
From the Patterns of the late T. BATE, Maker to the Exchequer.
City of London.

The box label reads: *BALANCE & GAUGE FOR SOVEREIGNS & HALF SOVEREIGNS / WILLIAM BLEWS & SONS / STANDARD WEIGHTS AND MEASURES / ENGLISH AND FOREIGN, / ESTABLISHED, AD 1732 / From the Patterns of the late T. BATE, Maker to the Exchequer, / City of London.*

The author has a second rocker, Figure 2 that bears the Blews Type 2 maker mark crown that when viewed considering the label and the above rocker helps to confirm that William Blews & Sons used the crown mark illustrated below:

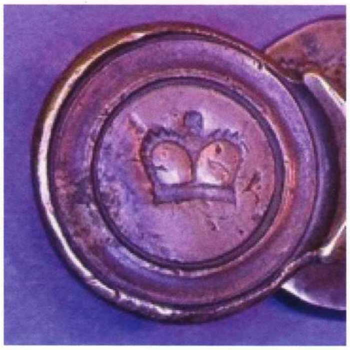


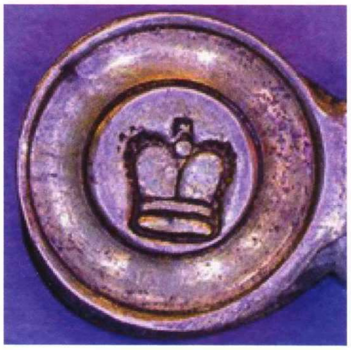
Blews Type 2

- W. Blews and Sons

- associated with Blews

(label on box)





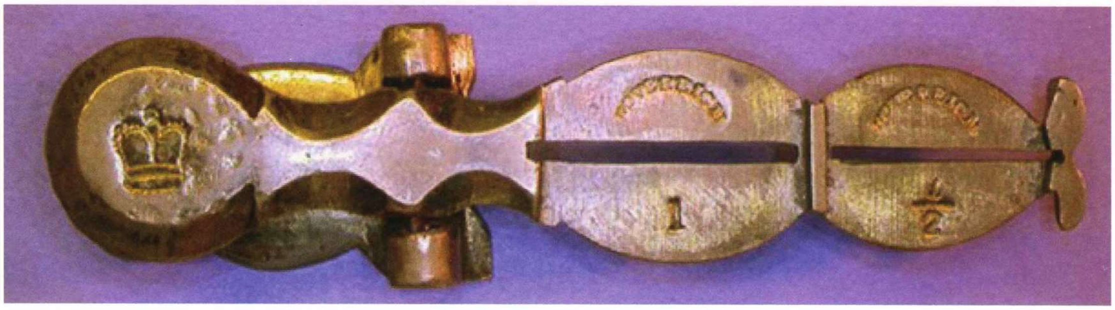
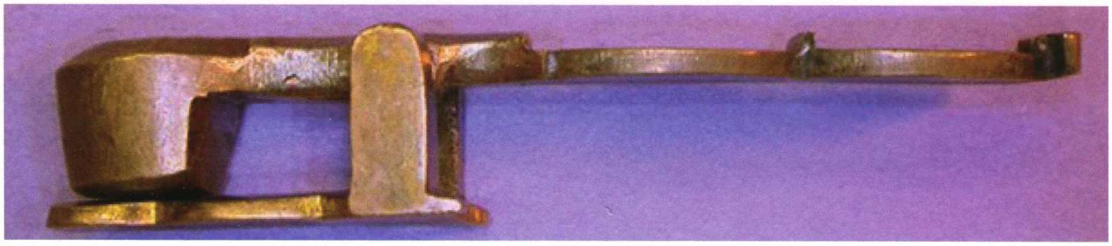


Figure 2. ▲▼ William Blews & Sons



Note the tight curved 'SOVEREIGN' stamp on the platters which is a distinguishing feature of Blews rockers.

William Blews & Sons (successor to William Blews), brass and bell founders, 9, 10, 11-15 Bartholomew St, Birmingham from 1847 to 1880. At the Great Exhibition of 1851 their exhibits included candle lamps candlesticks, bells and Imperial weights and measures.

Additional known dates of business operation from Birmingham and London Directories:

William Blews & Son(s)

1845 William Blews & Son, 9 Bartholomew Row, Birmingham Manufacturer of brass candlestick, fire brasses

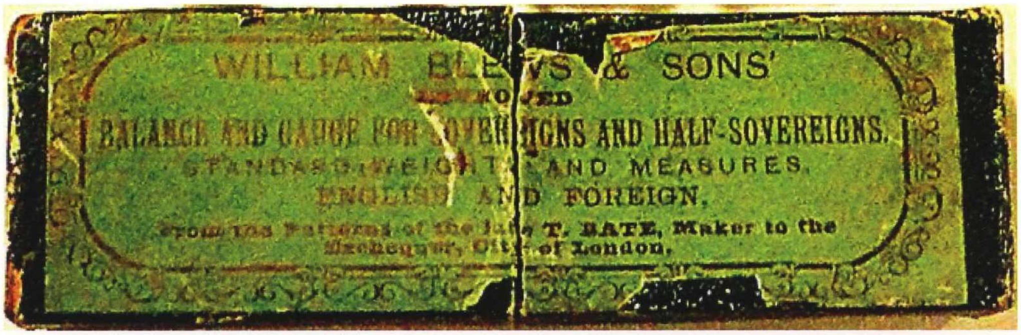
1860-62 William Blews & Sons, 10-11 Bartholomew St, Birmingham Brass founders

1870 William Blews & Sons, Royal Eagle Tub Works, West Bromwich, Bell & brass founder, brass candlestick maker

1871-75 William Blews & Sons, 9-15, 38-41 Bartholomew St, Birmingham Brass founders

1870-80 William Blews & Sons, 38 West Smithfield, London office, Brass founders

A second William Blews and Sons box has recently come to light. This one is a "Shop box" (115 mm x 35 mm x 23mm) with a label variant of the previous box label.



WILLIAM BLE VS & SONS'

OVED

BALANCE AND GAUGE FOR SOVER IGNS AND HALF-SOVEREIGNS.

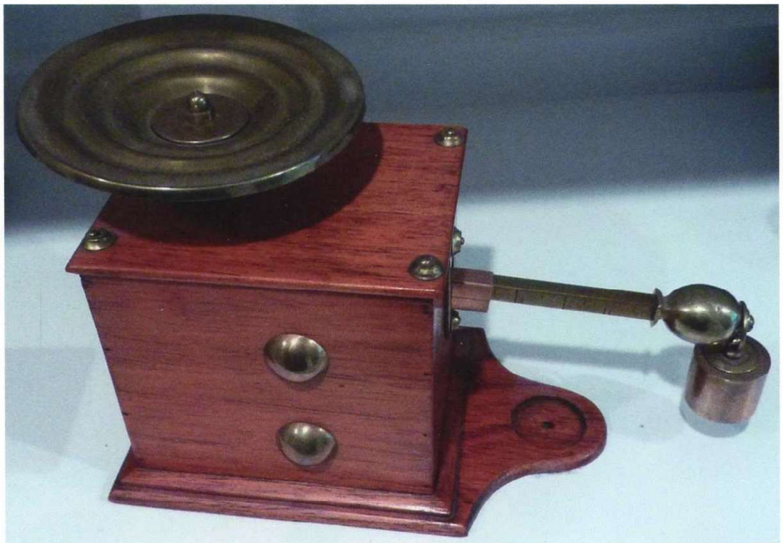
STANDARD WEIGHTS AND MEASURES.

ENGLISH AND FOREIGN.

From the Patterns of the late T. BATE, Maker to the Exchequer, City of London.

The box label reads: *WILLIAM BLEWS & SONS' / IMPROVED / BALANCE & GAUGE FOR SOVEREIGNS & HALF SOVEREIGNS / STANDARD WEIGHTS AND MEASURES / ENGLISH AND FOREIGN, / From the Patterns of the late T. BATE, Maker to the Exchequer, / City of London.*

SHOWCASE



This small scale, described by the owner as "Folk Art" appears to be home-made. The wooden box has on its base an indention to hold the poise which is mounted on the end of the beam when in use for heavier loads. The brass beam extends out from inside the box where it is stored when not in use.

One side of the beam is graduated from 0 to 6 ounces while the other is graduated from 7 to 20. The box is 4" high with the scale measuring $5^1/_8$" high by 7" long.

Dean & Janet Terwilliger collection.

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2019 ISSUE NO. 4 PAGES 4637 - 4664

Cover Picture

The Scale Queen postal scale paper weight on our cover might be an early version or a unique example. Does this solid brass model exist in other collections? Read the article on pages 4642-4649 for an update on Wehman's article on pages 2340-2343 of *Equilibrium.*

Gregg Motter Collection.

Happy Holidays from the Editor and staff of EQM!

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Photos are best in 300 DPI Jpegs in a separate file with a maximum of 3 photos per Email.

A Different Oval Japanned Box

BY ANDREW CRAWFORTH

When I was working on Portobello Road in London, I saw this dilapidated oval japanned box and noticed that it had writing on it. I hadn't seen such a box before, but I tried to look only slightly interested when I picked it up. I didn't want to show that I was excited by it while I was buying it.

I took it home (see Figure 1) and tried to understand what it said:

Health & Love & ready Rhino
To every one that you and I know.

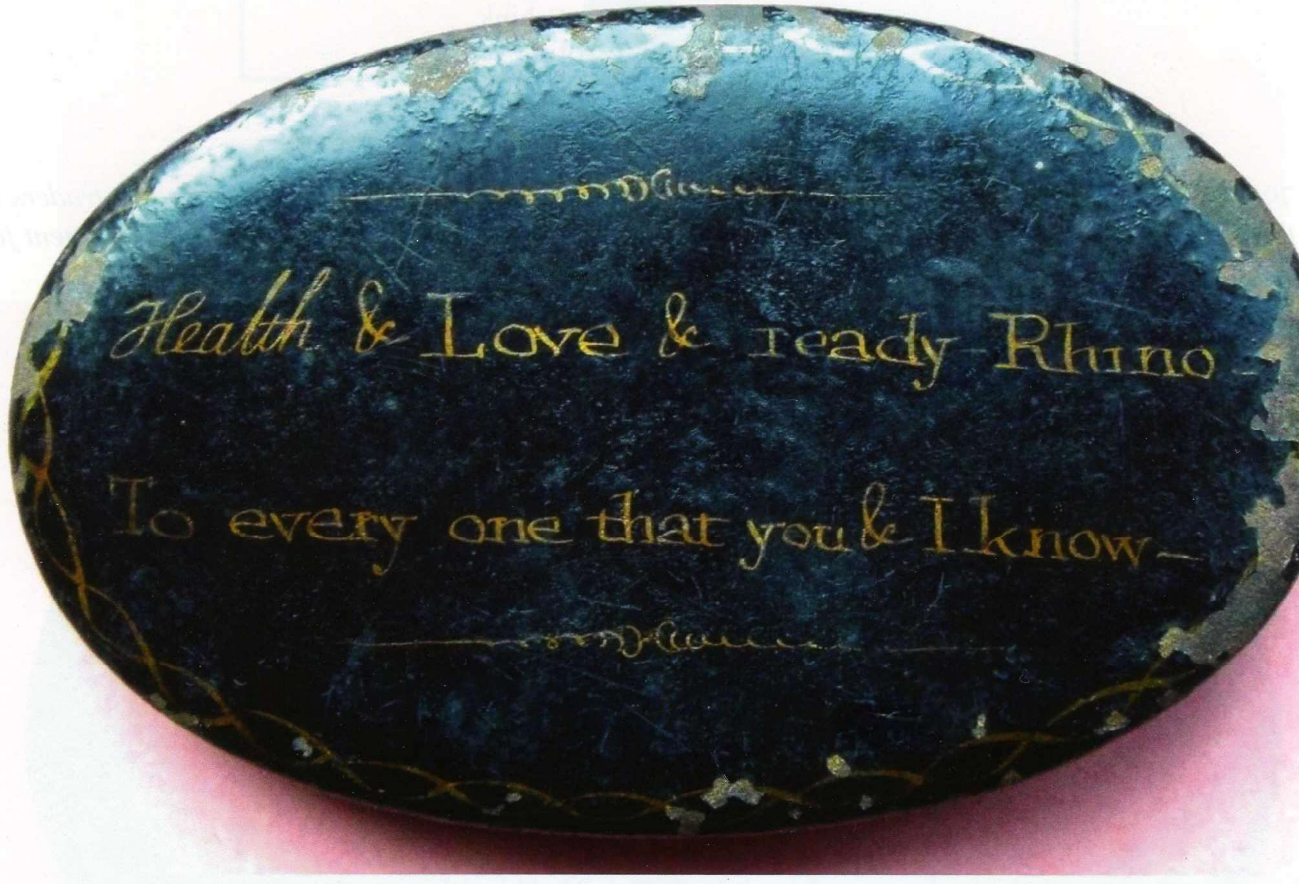


Figure 1. ⮝⮝ The box was chipped all round the edge, but fortunately the words remain clear. Full size.

I had never heard of "*ready Rhino*", so I looked it up in a Dictionary and discovered that it meant "*coins in one's possession*". As it was written on a box of scales for checking gold coins, it seemed an appropriate phrase. I was pleased to own such an unusual box, but thought that my mother would like to have it in her collection. Sure enough, on her birthday, she was delighted because she didn't have any other oval japanned box (among 75 other ones) that had writing on it.

Recently, she brought her oval boxes over to my house to discuss their varied designs and I wondered when "*ready Rhino*" was in use. She asked a friend who works on the Oxford English Dictionary what dates they had for it, and was told that it was definitely in use from 1628 until 1988, although I'd never heard it used.

In the 17th and 18th century, it was a cant phrase spoken by uneducated people, and was used in published material when the author wanted to indicate that the speaker was rough, dodgy or criminal. "*Rhino*", "*Rino*" or "*ready Rhino*" was used in many songs and doggerel. For example (See Figure 2).

> But when I go in search of a Wife,
> 'Tis in search of a wife with the ***rhino***!
> 'Tis then that I sigh,
> When the **ready** is nigh;
> Leer, ogle, and wink,
> When I hear the sweet chink,
> The sweet merry chink of the ***rhino***

Figure 2. ⋀⋀

In 1796, the comment was published "*Ready Rhino - a vulgar and despicable dialect of coarse traders in the hour of merriment; but to be ever sedulously avoided by those who mean to be thought eminent for choice of phrase and elegant of conversation*".

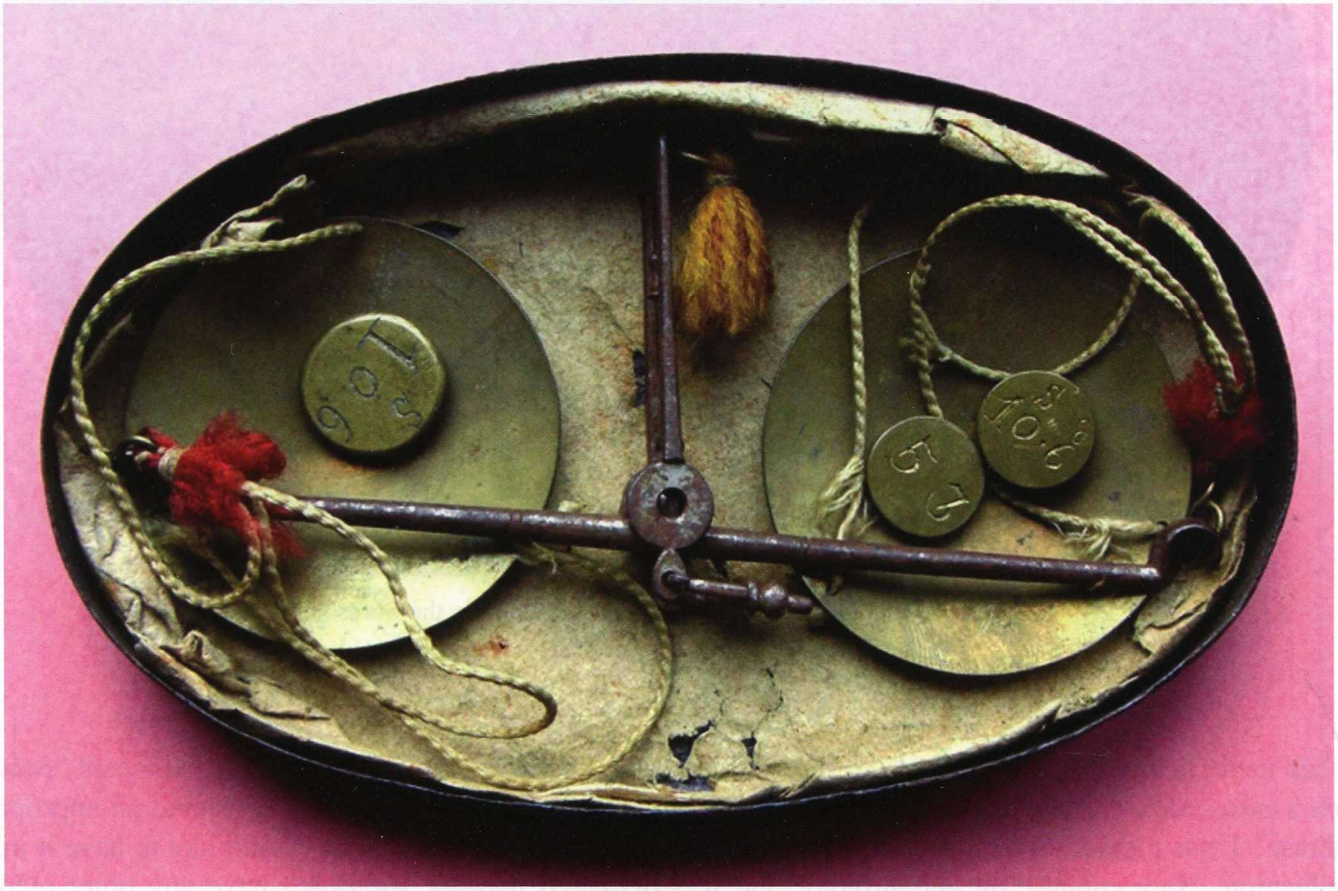


Figure 3. ⋀⋀ The original woollen cloth lining was removed (probably as a consequence of holes being eaten into it by clothes-moths) and replaced by a piece of paper, but the silk tassels remain intact.

In a case of Seditious Words at the Old Bailey in 1848, the prisoner stated "*though perhaps I have not much rhino, I am perhaps more respectable than many other merchants, for I do go to market with ready money. I sell fish about the streets*".

The derivation is a mystery. As the phrase was used in London, it might be Cockney rhyming slang. Cockneys wanted to be able to speak to each other without strangers (like the Police) being able to understand them. So possibly they took the word "*corn*", another slang word for money, and associated it with the very expensive rhino horn, so that when they wanted to refer to money, they just said "*Rhino*". To those unfamiliar with Cockney rhyming slang, this might sound extreme, but it fits the way they developed their slang! Or it might have some relationship with people tapping the side of their nose while saying "*I'll pay cash on the nose*", that is on the rhin, the Greek word for a nose.. But even that seems unlikely, as which uneducated people would know any Greek?

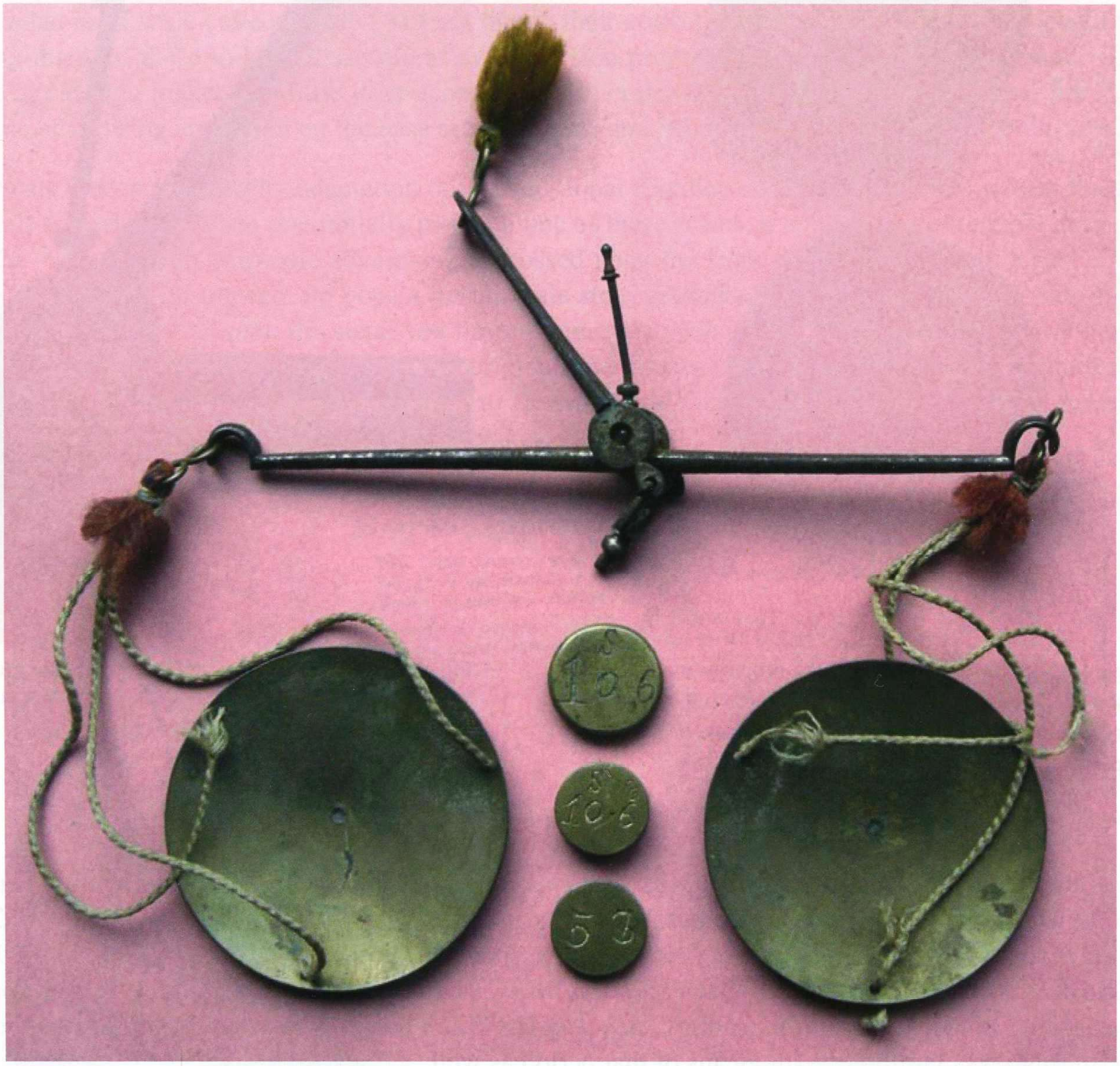


Figure 4. ▲▲ It has a classic English beam with swan-necks and three weights, the lower two being original, for 10/6 and 5/3, the half-guinea and the quarter guinea. This suggests that the box was made around 1765-1770.

I found this very interesting and showed the box to a friend who was born in 1949. He did not need the phrase explained to him because he remembered his London family using the phrase in casual conversation. So has the phrase died out? Can you remember its being used? Has it survived in the United States or in the United Kingdom?

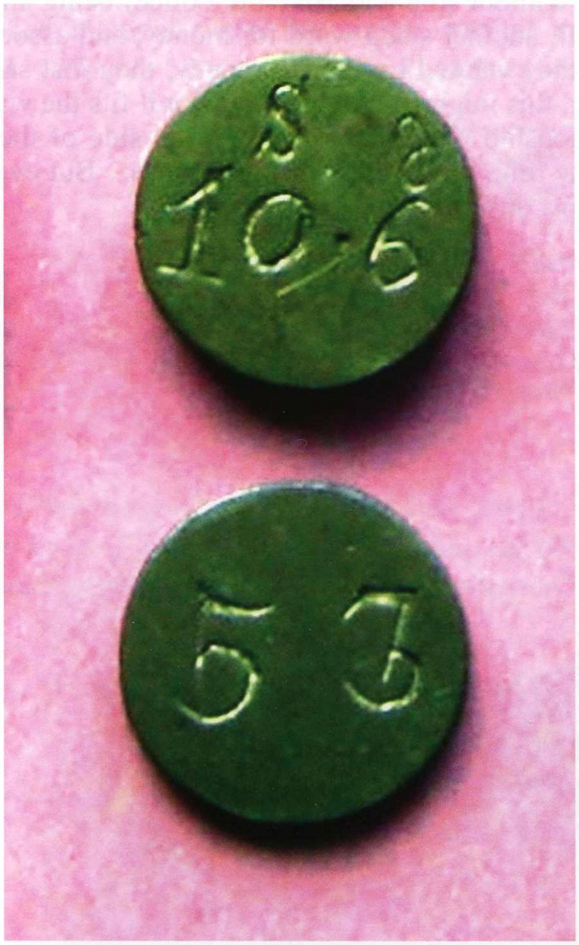


Figure 5. ▲▲ The weights were properly made discs of the correct weight, but the engraving was very amateurish, done by someone with little or no experience.

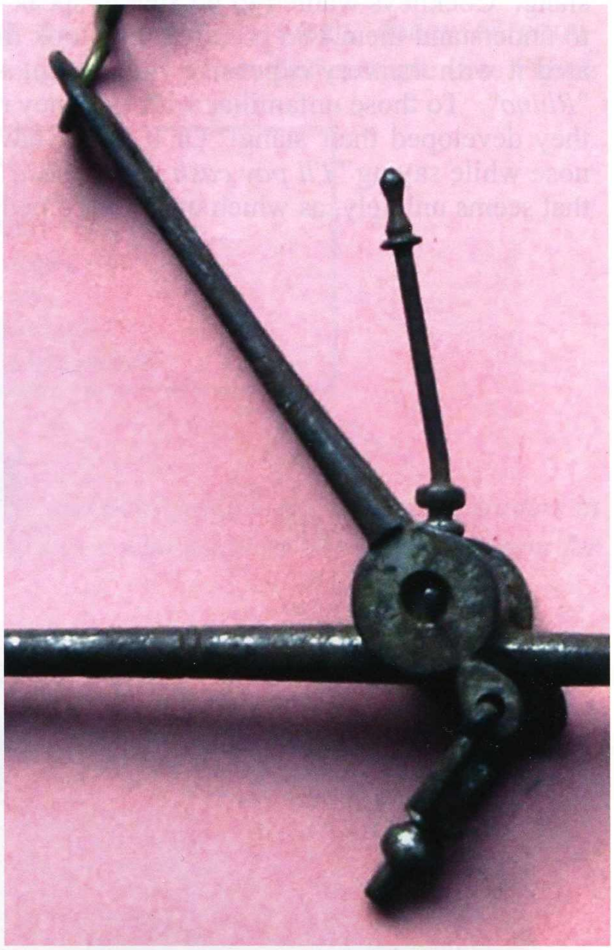


Figure 6. ▲▲ Rust has attacked the beam, but the very dainty pointer shows that once this was a very finely made piece.

How little the world has changed! In 1740, the *London Magazine* included this *....lend him the sum of $90,000 which that Court stands in great Need of at present, their Finances being in very bad Order and all their warlike Projects retarded or entirely suspended for want of the ready Rhino.* In 1824, Washington Irving, in his story *The Devil and Tom Walker* wrote, without explaining it further, *You are the usurer for my money!" said black-legs with delight. When will you want the rhino?* I assume that the term rhino was familiar to Americans of that period as well.

Acknowledgements:
With thanks to Frances & Howard Simmons, Dr. Roger Little, Dr. Samantha Schadd, Fletcher Wallis and my mother Diana Crawforth-Hitchins.

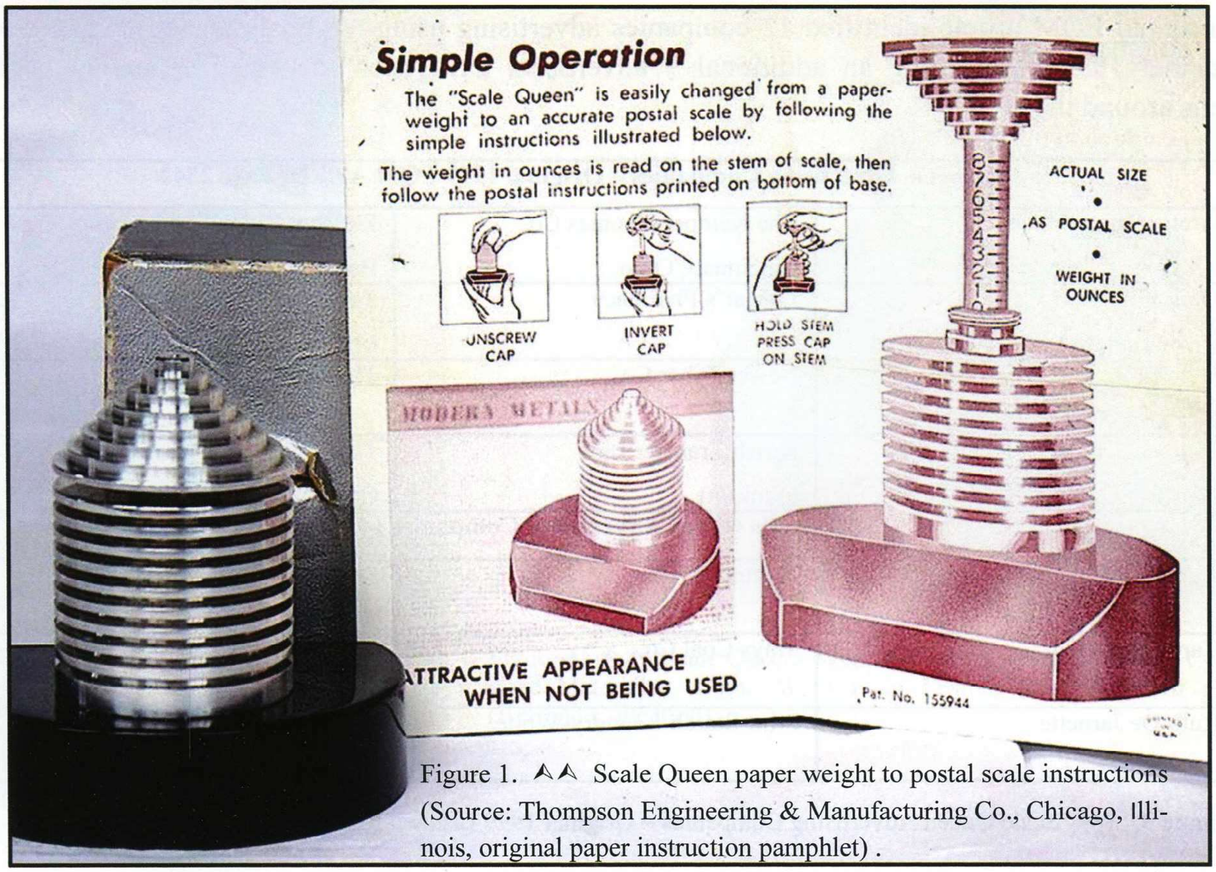
The Evocative Scale Queen ... Revisited

BY GREGG MOTTER

In 1999, GeorgeAnna. Wehman wrote a very nice, and complete, article on this versatile little scale that appeared in EQM Issue No. 2, pages 2340 to 2343. Since that time, a lot of new information has been uncovered concerning this interesting scale. In this article, I will repeat very little of the information G. Wehman covered since that is in our back-issue archives, and focus solely on the newly discovered information.

These little combination paper weights and letter scales are intriguing to just about everyone, and it seems that most scale collectors have at least one in their collection. Many scale collectors cannot resist buying many of these to have a sample of every version produced. Therefore, this sleek, modern, machine age design makes this little desk accessory quite collectible, and in some cases valuable. Scales with no advertising appearing on the base are quite rare, and hence highly sought after by collectors.

The Scale Queen is a novelty adaptation of the traditional Candlestick spring scale that is well known to all scale collectors[1]. When one initially picks up one of these scales, it appears to be a simple desk paper weight – usually with corporate advertising embossed upon the front sloped surface of the base. When the conical cap is unscrewed, up pops a postal scale stem graduated 0 to 8 by ounces and half-ounces. Once the top is pressed onto the stem, you have a home use postal letter scale. The compression spring is adjustable via a screw in the base, but the original instructions state this is 'almost never required'. In some of the literature, authors have referred to this little scale as the 'airplane scale' due to the resemblance of the exposed cylinders on WWII airplanes.



Simple Operation

The "Scale Queen" is easily changed from a paper-weight to an accurate postal scale by following the simple instructions illustrated below.

The weight in ounces is read on the stem of scale, then follow the postal instructions printed on bottom of base.

Figure 1. ⩓⩓ Scale Queen paper weight to postal scale instructions (Source: Thompson Engineering & Manufacturing Co., Chicago, Illinois, original paper instruction pamphlet) .

The housing is usually machined from a solid aluminum bar and then polished to a satin smooth finish. The paper weight / letter scale base is usually made of Bakelite[2] with a sloping front surface bearing advertising since these were often business promotional giveaways to their customers.

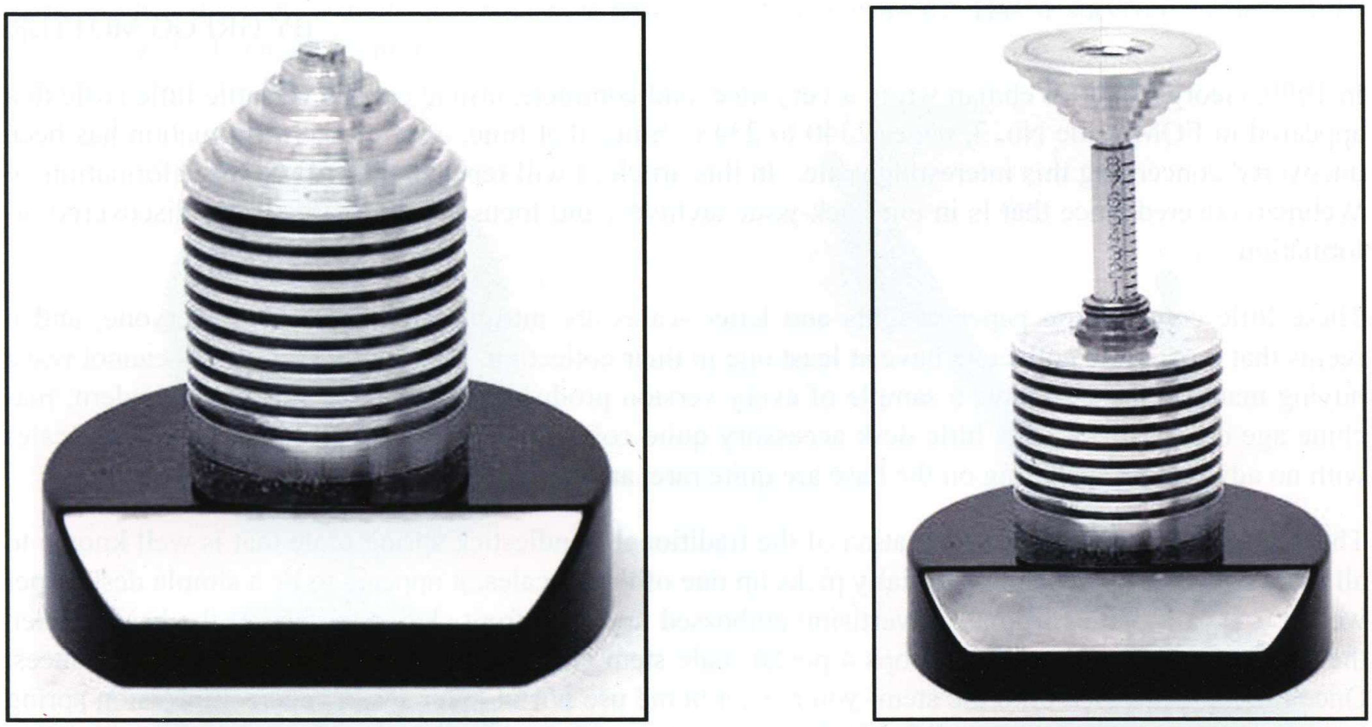


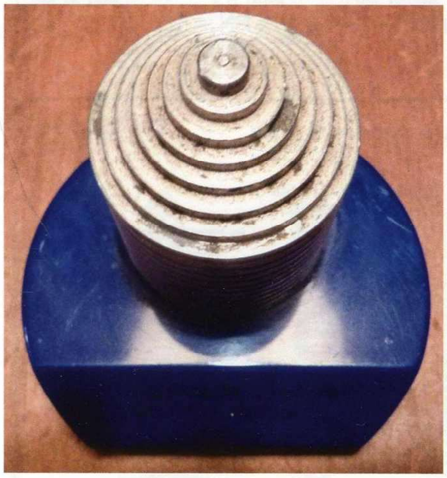
Figure 2 A & B. ⮝⮞ Scale Queen paper weight and postal scale assemblies. Corporate advertising usually appeared on the slanting front surface that appears white in the photos. These scales were small: 3 inches tall unopened, 4¼ inches tall opened.

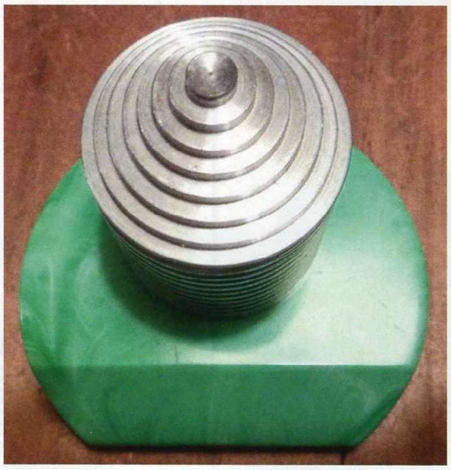
The original EQM article identified 12 companies advertising using the Scale Queen desk accessory. Since that 1999 publication, an additional 9 advertisers have been identified appearing on Scale Queens around the country[3].

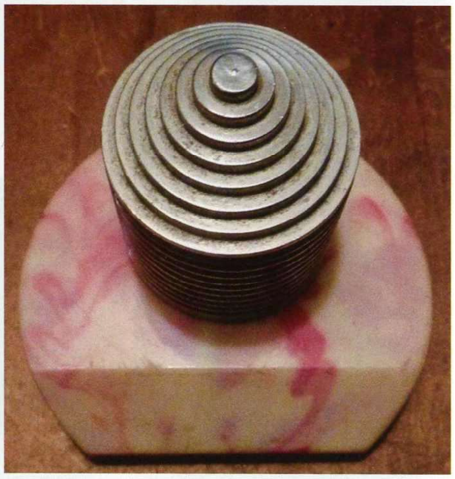
Scale Queen Advertising Companies – Original 1999 EQM Article, Page 2342		
Arctic Office Mach. Co. Anchorage, Alaska	The Kemper-Thomas Co. Cincinnati, Ohio	Pleasant Ridge Service Birmingham, MI
Dick Ellis Steel Co. Richmond, VA	LoMar's Pharmacy	Tel-e-lect Products Minneapolis, Minn.
Hampshire Paper Box Co. Florence, MA	Newco Fiber Co.	Thomas & Riggs
Holmes-Talcot, Constr. Equip. Harford, CT	Parish Transfer Line Frankfort	The Williamson Heater Co. Cincinnati, Ohio
Additional Scale Queen Advertising Companies Identified		
Anchor Photo Supply Co.	Hartung & Co.	Springs and Wire Forms
Carey Scale Co.	Mays Coal Co.	Vaccaro Line
Ruth De Jarnette	Prim-Starch-Laundry-White	Shunk Mfg. Inc.

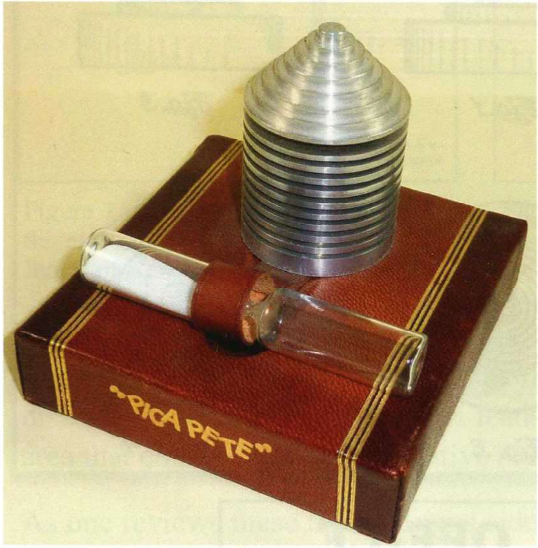
Figure 3. ⮝⮝ Scale Queen Advertising Companies – Original 1999 List and Recently Identified.

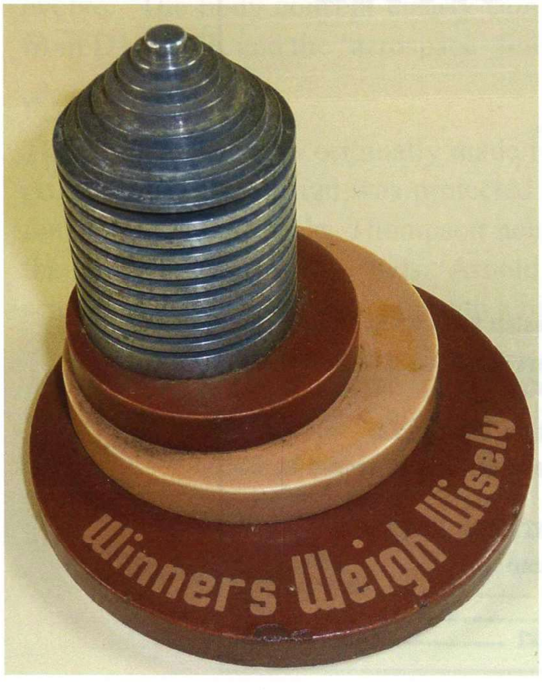
The base was made in several colors such as jet black (original design shown in Figure 2 A & B), emitting blue, frightful green, simulated amber, brown, and mixed / swirled colors as well as leather covered ceramic, wood and plastic.











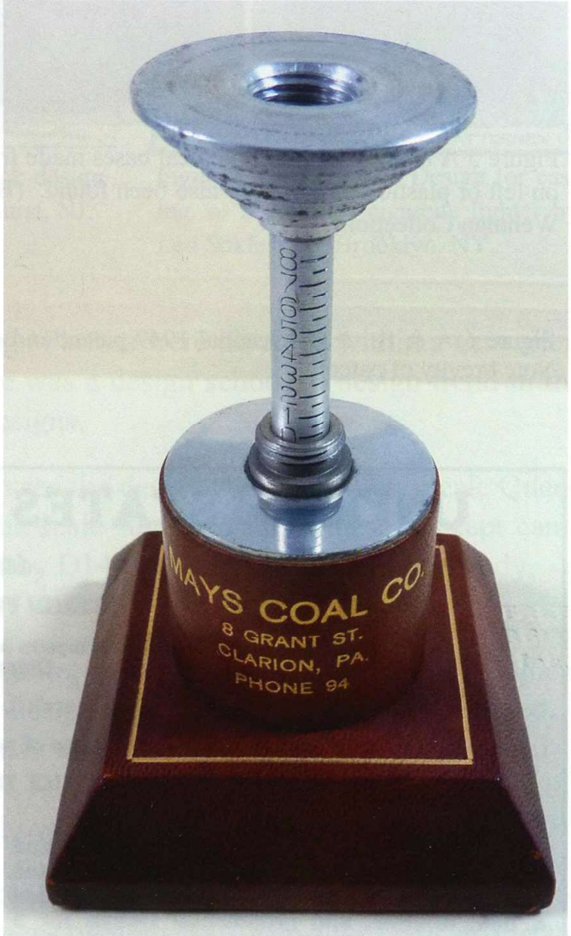


Figure 4. ▲▲ Scale Queens Were Made In A Wide Variety of Colored Base Materials - Some Were Even Leather Covered or of plaster (Berning Collection).

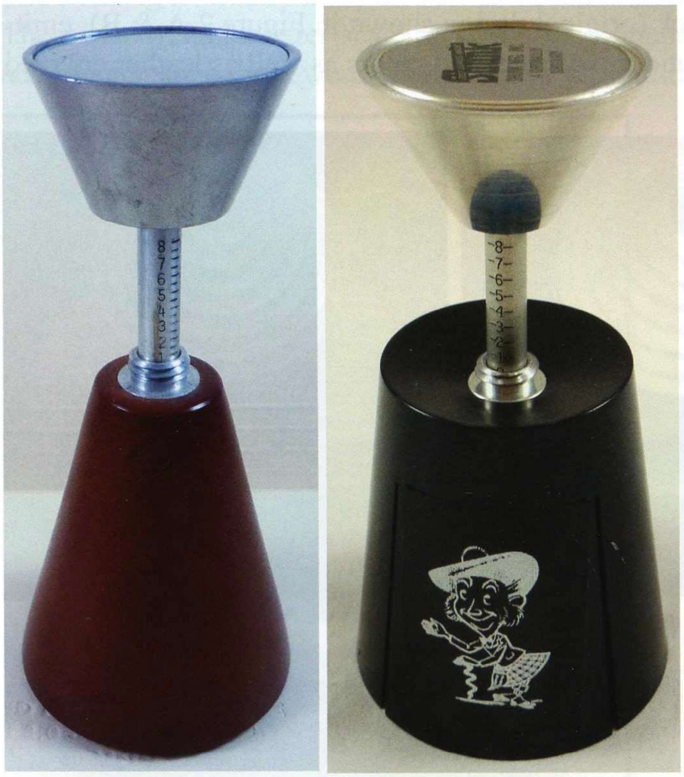


Figure 5 A & B. ⮝⮝ Semi-conical bases made from wood on left or plastic on right have also been found. (Berning & Wehman Collections).

Historical Background

The scale was designed in 1948 by Arnold M. and Melvin D. Thompson of Chicago, Illinois, and patented in 1949 as U.S. Design No. 155,944.

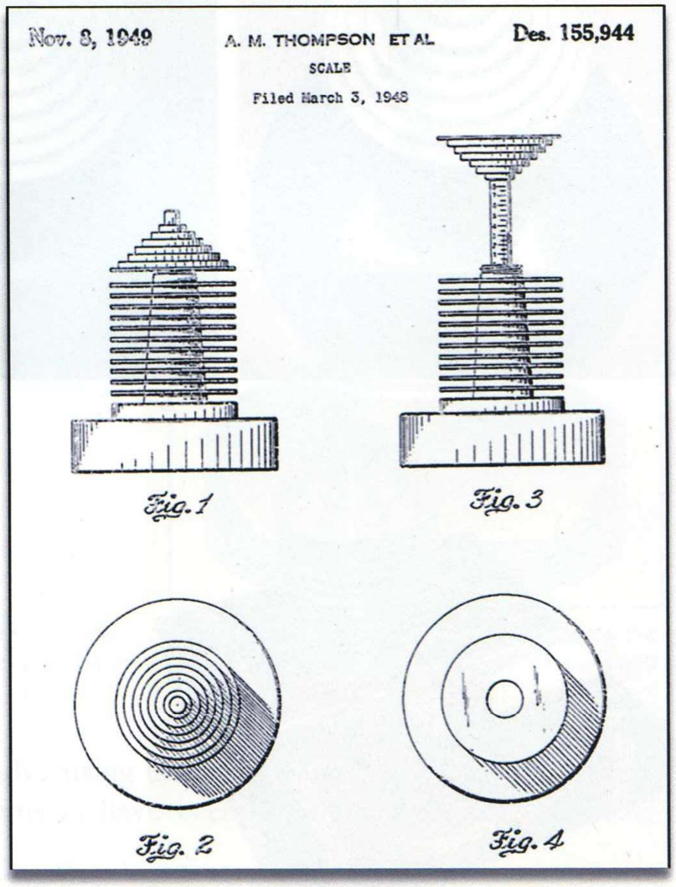
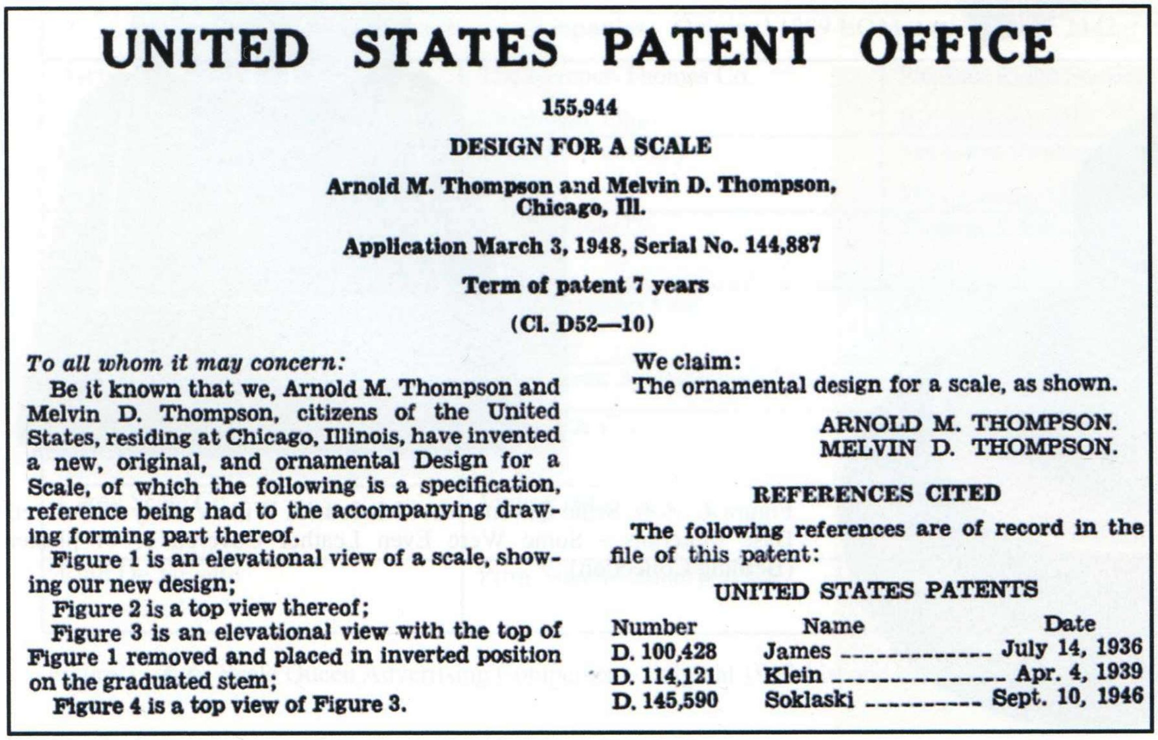


Figure 6 A & B. ➢⮟ Original 1949 patent and drawings, Note brevity of patent!



UNITED STATES PATENT OFFICE

155,944

DESIGN FOR A SCALE

**Arnold M. Thompson and Melvin D. Thompson,
Chicago, Ill.**

Application March 3, 1948, Serial No. 144,887

Term of patent 7 years

(Cl. D52—10)

To all whom it may concern:

Be it known that we, Arnold M. Thompson and Melvin D. Thompson, citizens of the United States, residing at Chicago, Illinois, have invented a new, original, and ornamental Design for a Scale, of which the following is a specification, reference being had to the accompanying drawing forming part thereof.

Figure 1 is an elevational view of a scale, showing our new design;

Figure 2 is a top view thereof;

Figure 3 is an elevational view with the top of Figure 1 removed and placed in inverted position on the graduated stem;

Figure 4 is a top view of Figure 3.

We claim:

The ornamental design for a scale, as shown.

ARNOLD M. THOMPSON.
MELVIN D. THOMPSON.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
D. 100,428	James	July 14, 1936
D. 114,121	Klein	Apr. 4, 1939
D. 145,590	Soklaski	Sept. 10, 1946

The Thompson patent references U. S. Design Patents D100,428 for a combined bottle and stopper, D114,121 for a clock design on a base and stem, and D145,590 is for the body of a cigarette lighter.

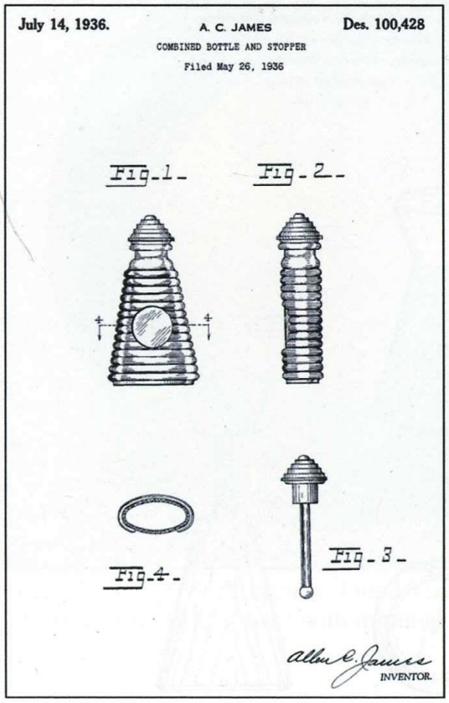


Figure 7. ⋀⋀ 1936, Combined bottle and stopper patent by Allen C. James of New York City.

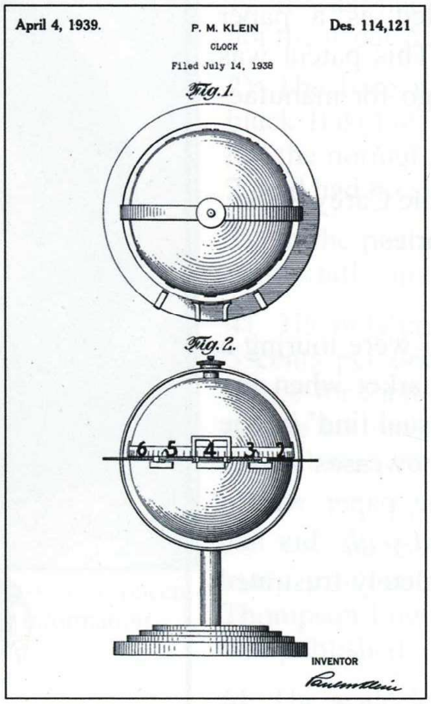


Figure 8. ⋀⋀ 1938, Clock design by Paul M. Klein of Cedarhurst, NJ.

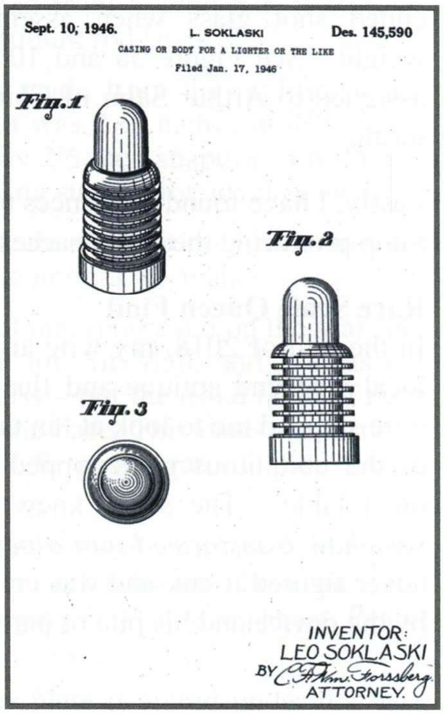


Figure 9. ⋀⋀ 1946, Design for casing, or body, of a cigarette lighter by Leo Soklaski of Brooklyn, NY.

It is interesting to note all three of the referenced U. S. Design Patents were invented within a very short distance of New York City! This leads one to believe there was a design school or design trend in the area that emphasized transformative multi-purpose device designs.

As one reviews these three designs side-by-side, it is easy to see the design concepts of the Scale Queen evolve. The body concept clearly came from D100,428, the scale stem and raised base concept came from D114,121, and the 'aerospace' fined body was inspired by D145,590, the cigarette lighter body.

Producers

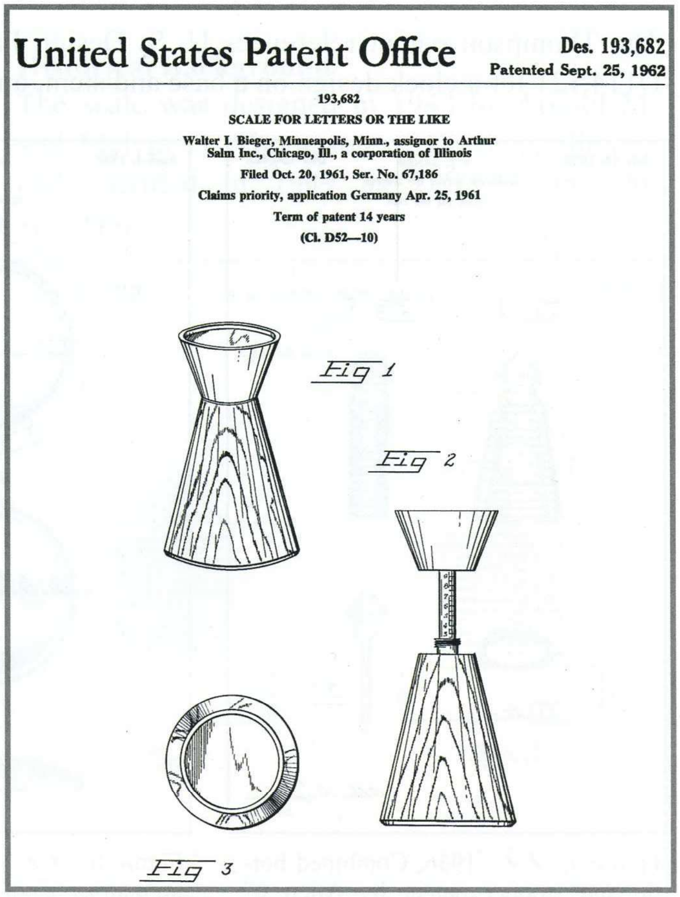
The Scale Queen was originally made by Thompson Engineering & Manufacturing Company of Chicago, Illinois. The design was protected by their seven-year design patent, D155,944. As mentioned in the earlier EQM article, Thompson held U. S. design patents on several variants of this scale issued in the late 1950s and early 1960s. Arnold was awarded a U. S. Deign Patent D175,810 in 1955 where the scale was inside a bowling ball with a pin on either side as shown in the earlier article.

The Kemper-Thomas Company, a distributor of office accessories in Cincinnati, Ohio, also produced these scales for a period of time with photos of these specimens on numerous web sites dedicated to the Scale Queen[3].

In 1962, Walter I. Bieger of Minneapolis, Minn., was awarded U.S. Design Patent D193,682 for a ‘scale queen’ variant that appeared like a double ended shot glass when assembled as a paper weight. See Figure 5a and 10. This patent was assigned to Arthur Salm of Chicago for manufacturing.

Lastly, I have found references to the Carey Scale Shop producing these desk accessories.

Rare Scale Queen Find
In the Fall of 2018, my wife and I were touring a local weekend antique and flea market when my wife stopped me to look at ‘an unusual find’ in one of the ubiquitous glass topped showcases sitting on a table. The seller knew the paper weight *somehow transformed into a postal scale,* but had never figured it out, and was completely frustrated by the device and his pile of parts.



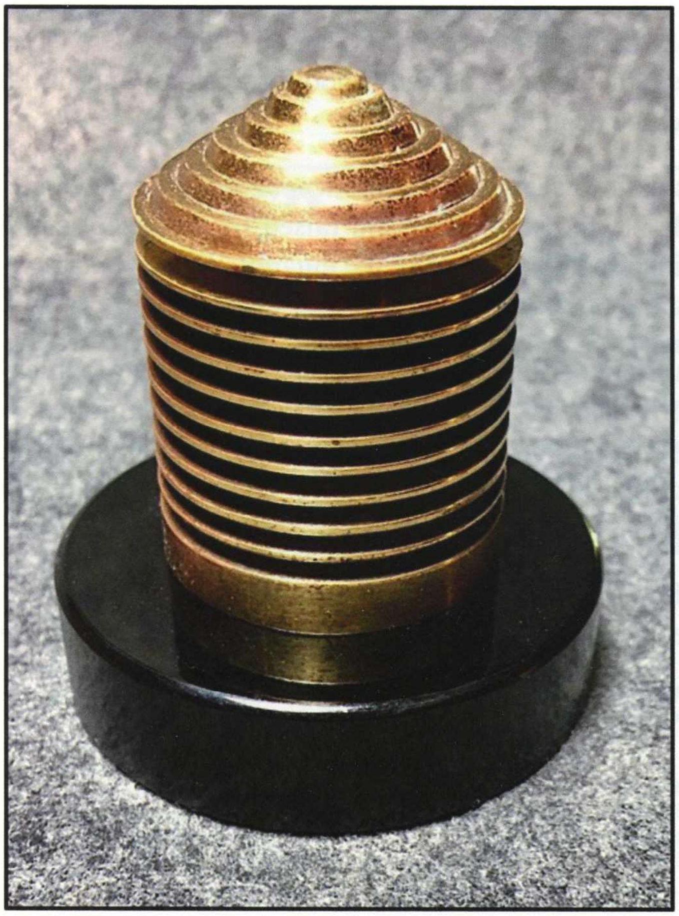
United States Patent Office

Des. 193,682
Patented Sept. 25, 1962

193,682
SCALE FOR LETTERS OR THE LIKE
Walter I. Bieger, Minneapolis, Minn., assignor to Arthur Salm Inc., Chicago, Ill., a corporation of Illinois
Filed Oct. 20, 1961, Ser. No. 67,186
Claims priority, application Germany Apr. 25, 1961
Term of patent 14 years
(Cl. D52—10)

Fig 1
Fig 2
Fig 3

Figure 10. ▲▲ 1962, Biegler’s patent for a letter scale and paper weight similar to scale queen.



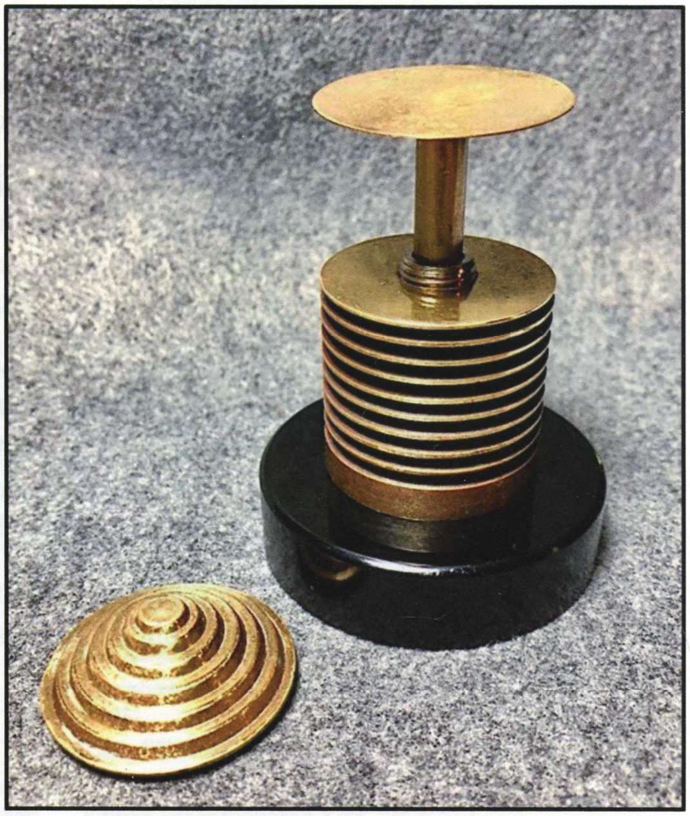


Figure 11 A & B. ◀▲ Recently found rare brass scale queen – configured as paper weight, left and home postal scale.

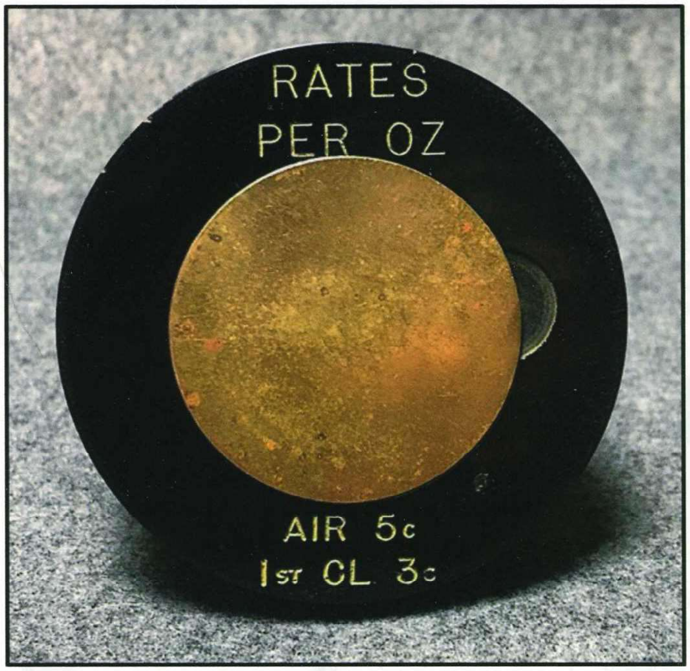


Figure 11 C. ▲▲ Recently found rare brass scale queen view of bottom side of base with minimal rate information.

This Find Was Unusual in Many Ways:

1) It was machined from a solid bar of Brass – not the usual Aluminum rod stock

2) The base was made from the traditional jet-black Bakelite, but was 2 ½ inches in diameter – not the normal 3 by 2½ inch shape seen in Figure 2, and had no sloping surface for advertising

3) In the postal scale mode, it only measures 3¼ inches tall – not the normal 4¼ inches

4) The only postal rates engraved on the scale are 5 cents per ounce for Air Mail, and 3 cents per ounce for First Class – not the usual table of rates on the bottom of the base. This dates the scale to 1948 based on U. S. postal rates[4]. See Figure 11C.

5) This paper weight / scale was most likely an early production model released about the time Thompson Engineering & Mfg. Co. Design Patent was published.

6) The scale letter plate is stored under the base and is in place as stored in figure 11 C.

7) The plate, when in use, is placed on top of graduated scale stem instead of the conical top being inverted as in the standard Scale Queen (see figure 11 B).

Questions Raised by this New Find:

1) Was the Scale Queen offered 'standard' in Aluminum since it was produced from new high technology material at the time, with traditional Brass as an option?
2) Did another party other than Thompson Engineering & Manufacturing, Kemper-Thomas, Salm or Carey Scale manufacture these unique scales?
3) Could an individual order / purchase one of these transformative paper weights as a desk accessory with no advertising for a gift or personal use?

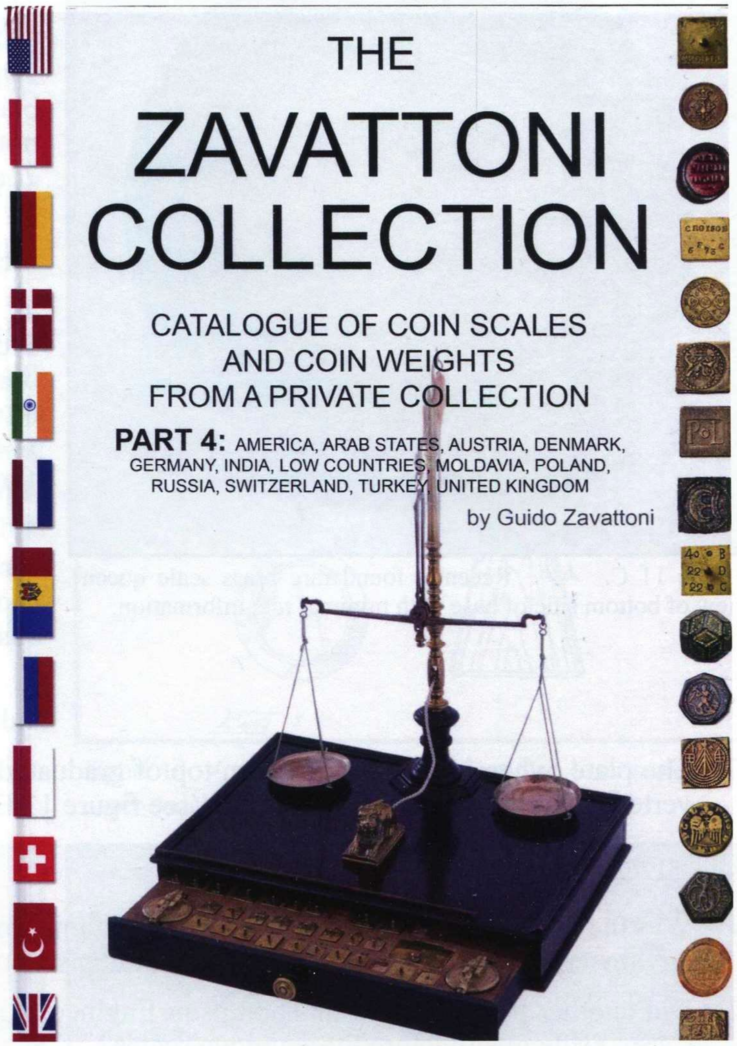
If a reader has additional information on the Scale Queen, please contact the author at sail1070@Yahoo.com. Many thanks in advance.

Notes and References:

1. Crawforth, M. A., *Handbook of Old Weighing Instruments*, Pages 15 and 16, Figure 6.
2. Per Wikipedia, Bakelite was designated a National Historic Chemical Landmark by the American Chemical Society as the world's first synthetic plastic.
3. There is a very nice web site called members.casema.nl/a.a.m.sol/41thompson1e.htm that provides a nice overview of the Scale Queen variants.
4. U. S. Postal Service web site for historical postal rates.

Review

The Zavattoni Collection Catalogue of Coin Scales and Coin Weights from a Private Collection, Part 4, America, Arab States, Austria, Denmark, Germany, India, Low Countries, Moldavia, Poland, Russia, Switzerland, Turkey, & United Kingdom, by Guido Zavattoni, published by Mass & Gewicht, written in English, 2018. Available from info@mass-und-gewicht.de. Price about £70 or $90. 565 A4 pages, around 1000 colour photographs of coin scales and 2000 of coin weights.



THE

ZAVATTONI COLLECTION

CATALOGUE OF COIN SCALES AND COIN WEIGHTS FROM A PRIVATE COLLECTION

PART 4: AMERICA, ARAB STATES, AUSTRIA, DENMARK, GERMANY, INDIA, LOW COUNTRIES, MOLDAVIA, POLAND, RUSSIA, SWITZERLAND, TURKEY, UNITED KINGDOM

by Guido Zavattoni

If you own one coin scale, you probably paid more for it than you will for this book which is a treasure-house of coin scales and coin weights.

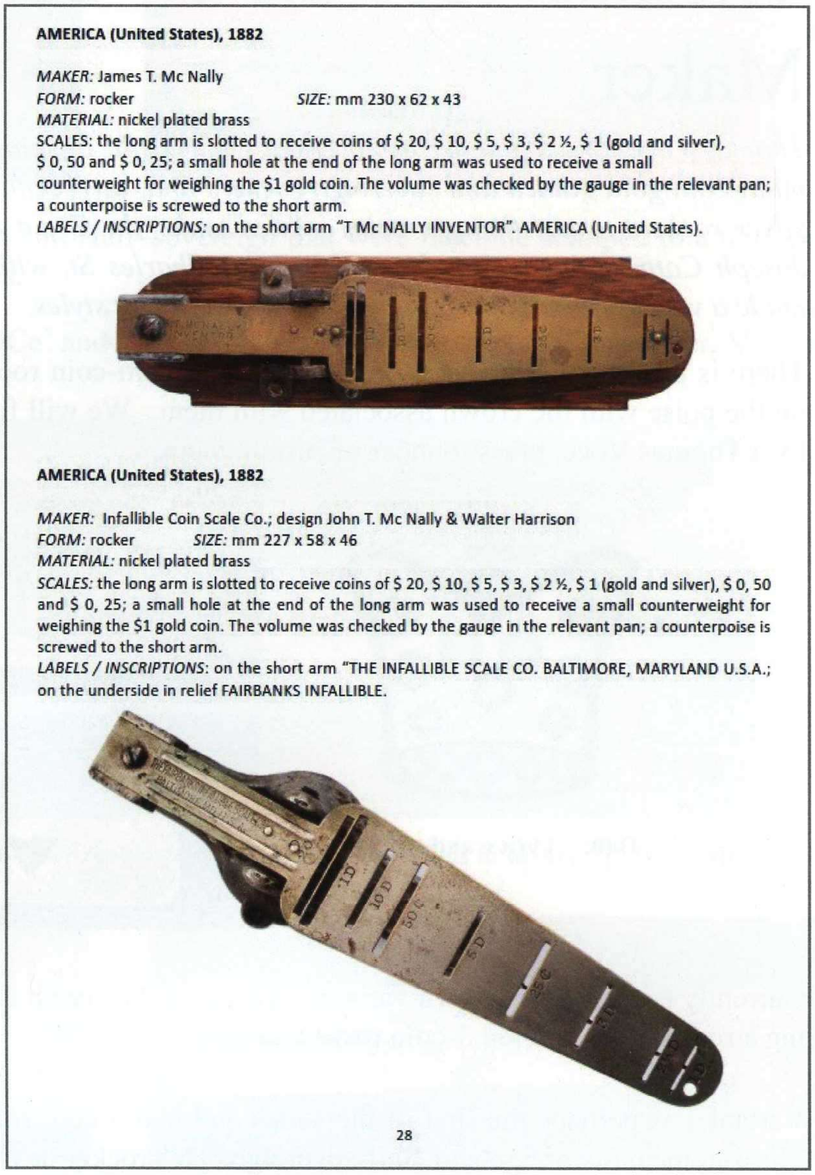
Because Guido has been collecting from all over Europe for many years, he has found and researched a fascinating range of scales and has put them into context. By adding little notes with the (mostly full-size) photographs of each scale, he gives us an understanding of the need for coin scales, and their place in the trading patterns of European countries.

The photographs show a mouth-watering range of very varied coin scales, some anonymous, but many with their trade labels still intact. Because Guido has printed out the wording of each, we can understand the rich details of the makers' production, and get a glimpse of other scales we might want to collect.

Using his usual precise methods, he lists each country's scales together, in date order, and with each scale, Date, Maker, Form, Size, Material, Scales (Beam), Label, Weights and Notes. He cross-refers to other scales where necessary, and provokes an immediate desire to rush to one's own collection for comparisons! The book is perfect for going to one's collection, but it is very tedious going from one's own collection to find Guido's scales by the same maker because there is no Index.

Hidden in this heavy book are some incredibly rare scales. The reviewers first thought was that we should show them here, but realised that showing the rarest would take the element of delighted surprise away when you buy the book.

Page 28 of Zavattoni's book, below covers American CCD's by McNally.



AMERICA (United States), 1882

MAKER: James T. Mc Nally
FORM: rocker *SIZE:* mm 230 x 62 x 43
MATERIAL: nickel plated brass
SCALES: the long arm is slotted to receive coins of $ 20, $ 10, $ 5, $ 3, $ 2 ½, $ 1 (gold and silver), $ 0, 50 and $ 0, 25; a small hole at the end of the long arm was used to receive a small counterweight for weighing the $1 gold coin. The volume was checked by the gauge in the relevant pan; a counterpoise is screwed to the short arm.
LABELS / INSCRIPTIONS: on the short arm "T Mc NALLY INVENTOR". AMERICA (United States).

AMERICA (United States), 1882

MAKER: Infallible Coin Scale Co.; design John T. Mc Nally & Walter Harrison
FORM: rocker *SIZE:* mm 227 x 58 x 46
MATERIAL: nickel plated brass
SCALES: the long arm is slotted to receive coins of $ 20, $ 10, $ 5, $ 3, $ 2 ½, $ 1 (gold and silver), $ 0, 50 and $ 0, 25; a small hole at the end of the long arm was used to receive a small counterweight for weighing the $1 gold coin. The volume was checked by the gauge in the relevant pan; a counterpoise is screwed to the short arm.
LABELS / INSCRIPTIONS: on the short arm "THE INFALLIBLE SCALE CO. BALTIMORE, MARYLAND U.S.A.; on the underside in relief FAIRBANKS INFALLIBLE.

28

As all historians know, trying to separate the countries is a nightmare, when they were reallocated to different regimes. Labelling the scales as being made or used in any one country can be arguable. For example, Guido's American section includes scales made in England that might have been used in the West Indies or might have been used by English merchants trading with Portugal. His decisions are justified, but might need to be thought about. He also has a tendency to believe that people immediately obeyed Proclamations, when the scales sometimes show that people ignored or evaded the legal situation for many years. This means that Guido has given dates that need to be thought about.

Guido photographed each scale with its weights set in the box, then shows the weights again, reverse and obverse, in a separate section of all the weights he owns that were made for the coins of each country. He warns the reader that he has placed the weights for one country's coins with all his weights made for coins of that country, so for example, weights made in England for Portuguese coins that were circulating in England appear in the Portuguese section. This has some surprising results, such as Italian weights in the English section.

The book has an astonishing catalogue of 15 American, 46 Turkish, 57 Austrian, 5 Danish, 118 German, 204 Dutch, 11 Russian, 14 Swiss and 518 British weights (with Withers' numbers), that means he has catalogued 981 weights just for this book. And he pops in some very nice nesting weights, scattered through the relevant country's section. We can rely on their being genuine, as he had the help of the experts in the German Society.

We do not need to tell you how highly we recommend this book. We had to restrain ourselves from using numerous adjectives like beautiful, fascinating, delectable, intriguing, superb etc! Just give yourself a present that will reward you for years to come.

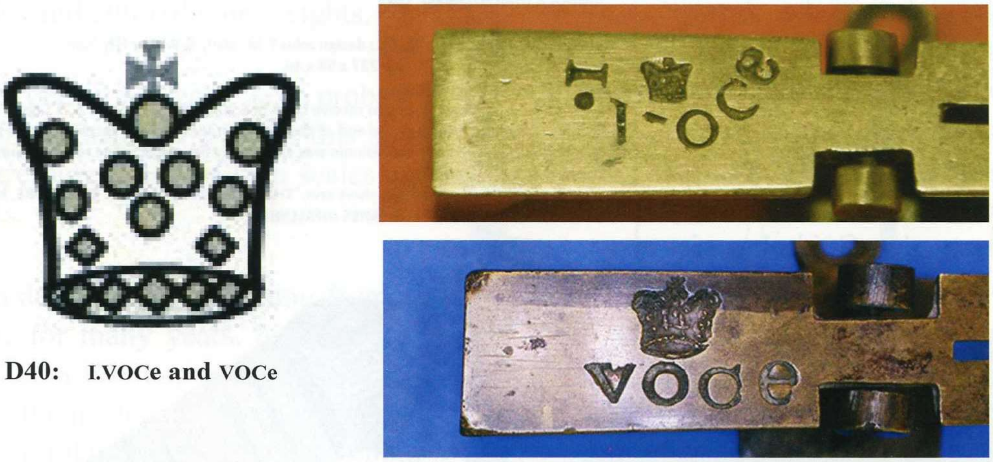
Andrew Crawforth & Diana Crawforth-Hitchins

Thomas Voce the 1ST Sovereign Rocker Maker

BY MICHAEL FOSTER

Thomas Voce, brass founder at 26 Great Charles St, Birmingham, was the maker of some of the first multi-coin gold guinea and sovereign rockers and, as recently discovered, some of the first multi-coin silver rockers to test the new coins minted under the Great Recoinage Law of 1816. His neighbour, Joseph Cottrell, brass founder at 25 Great Charles St, with whom Voce eventually partnered, also made a variety of early sovereign rockers in different styles.

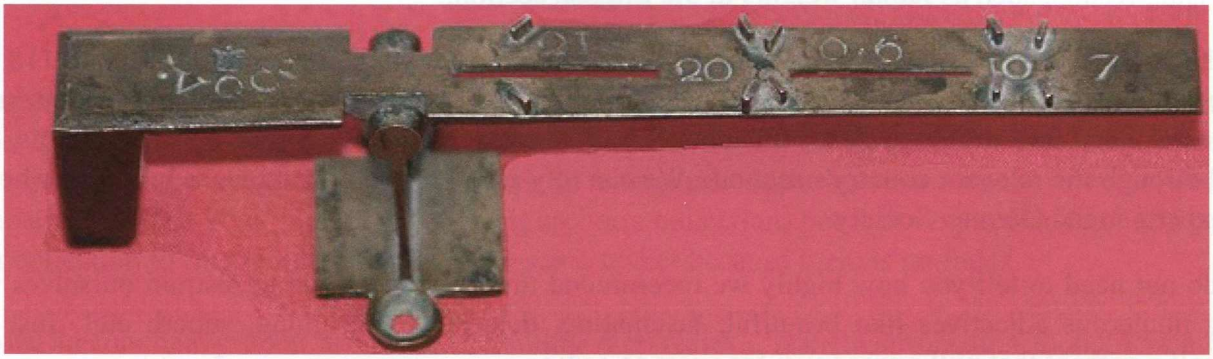
There is a series of elongated-poise high-riser multi-coin rockers with 'I.VOCe', or 'VOCe' stamped on the poise with the crown associated with them. We will find out later that these rockers were made by a Thomas Voce, brass founder of Birmingham.



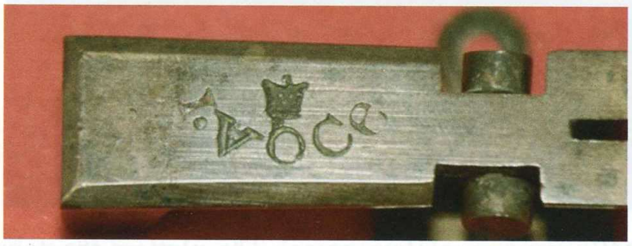
D40: I.VOCe and VOCe

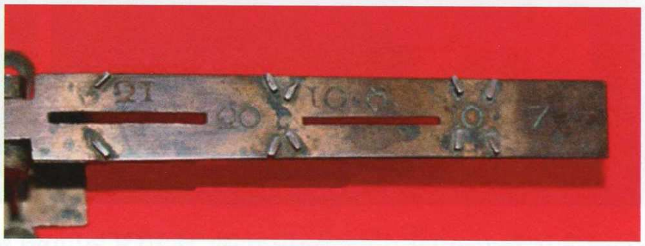
Currently there are six known variants of these rockers with the crown in the author's database, including a recently discovered 3-coin rocker for Silver.

Variant 1 is perhaps the first of the series and is a 5-coin rocker for testing the Guinea, Half-guinea, Third-guinea, Sovereign and Half-sovereign. This rocker has 'I.VOCe' and the crown on a plain poise. The platters are delineated with coin stops and stamped with '21', '20', '10.6', '10' and '7'. The base has attachment holes:



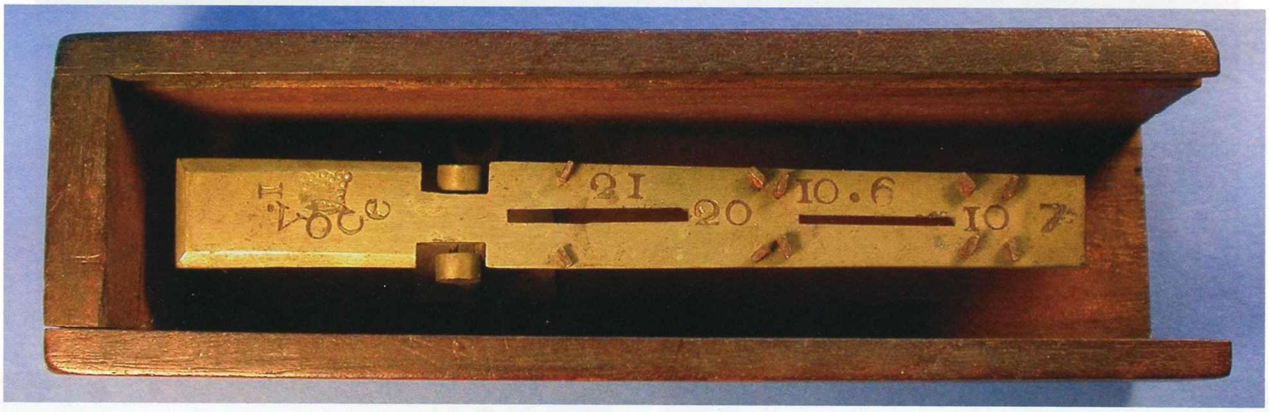
Variant 1: 'I.VOCe' elongated-poise high-riser rocker for guineas and sovereigns.



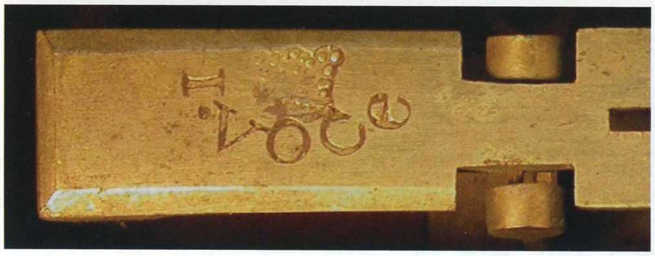


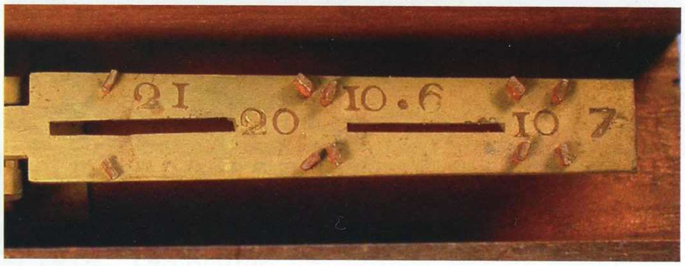
The gauge slots are for the new Sovereign and Half–sovereign that were machine stamped to a uniform thickness that could be tested by the gauges.

A second example of Variant 1 with 'I.VOCe' and a larger D40 crown on the poise. This rocker, Variant 1a, has a mahogany box with slide top.

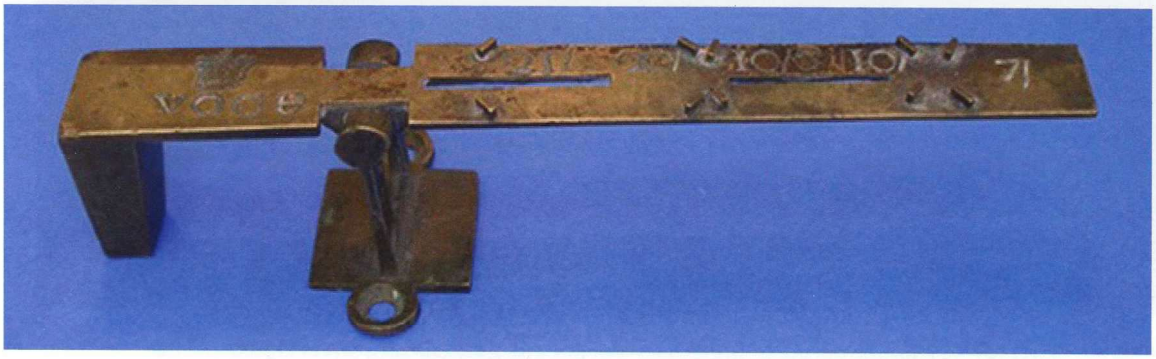


Variant 1a: 'I.VOCe' elongated-poise high-riser rocker for guineas and sovereigns in mahogany box with slide top.

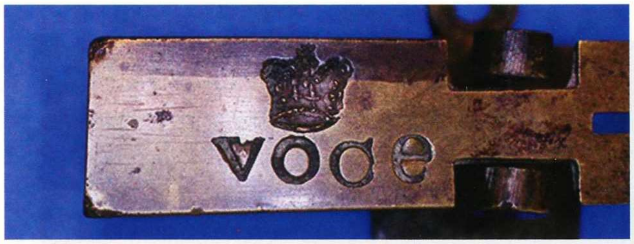


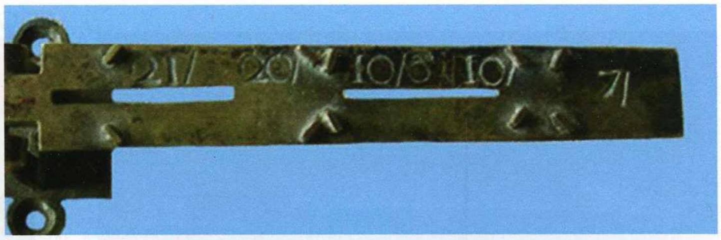


The third rocker, Variant 2 has 'VOCe' and a larger D40 crown on a bevelled edge poise. The platters are delineated with coin stops and now stamped with '21/', '20/', '10/6', '10/' and '7/'. It has the same base and gauge slots as Variant 1.

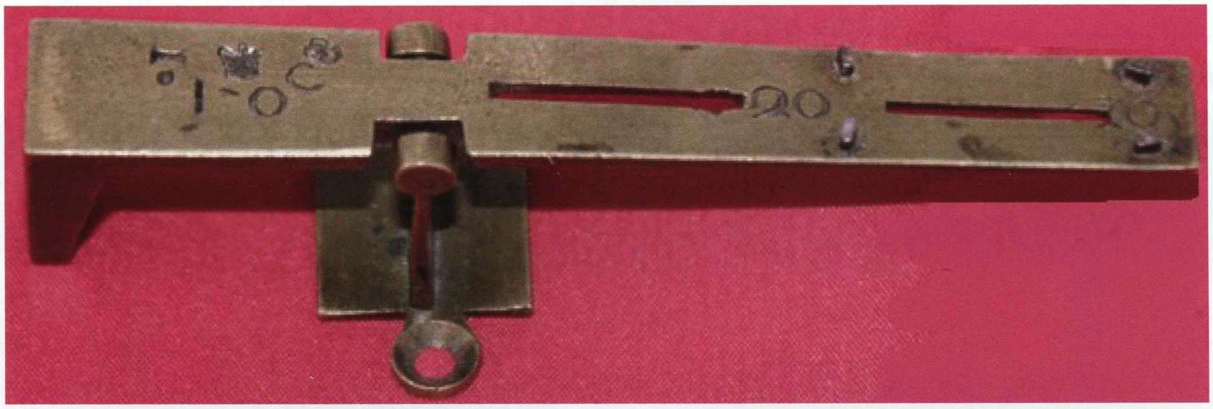


Variant 2: 'VOCe' elongated-poise high-riser rocker for guineas and sovereigns.

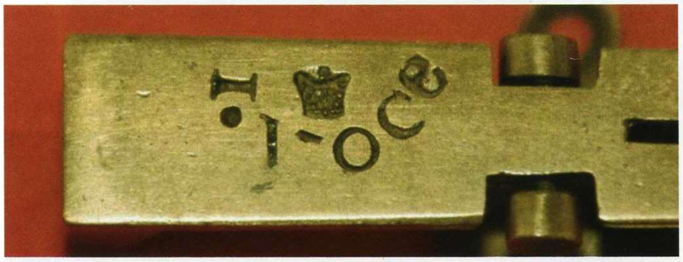


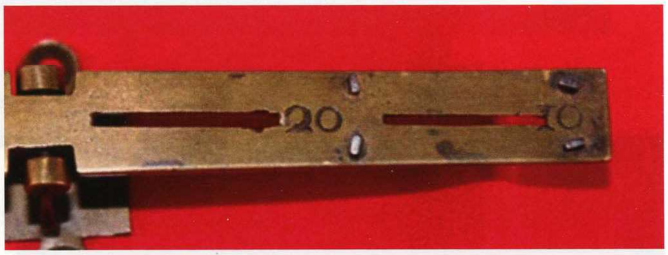


Variant 3 is for sovereigns only with ‘I.VOCe’ and the D40 crown on a plain poise. The platters are delineated with coin stops and stamped with ‘20’ and ‘10’. The base and gauge slots are the same as Variants 1, 2 and 3:

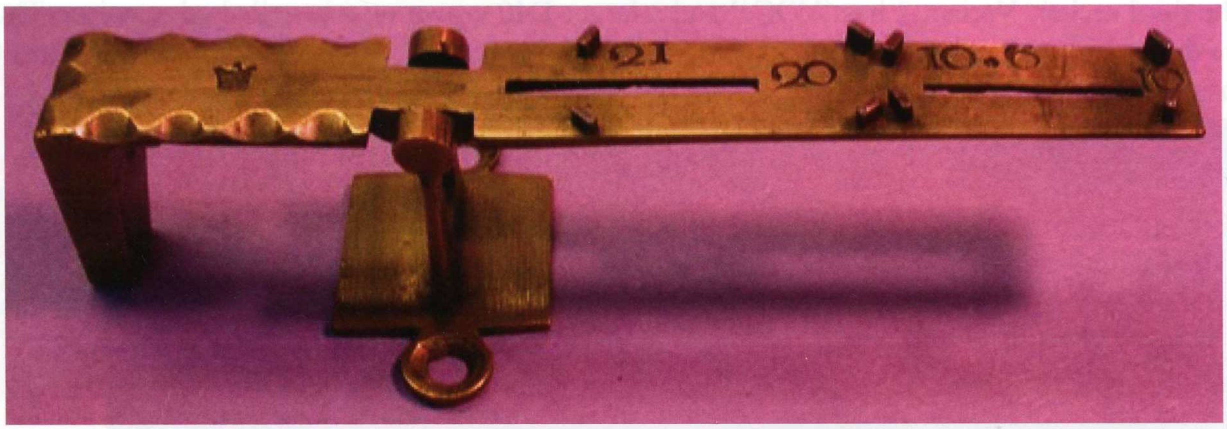


Variant 3: ‘I.VOCe’ elongated-poise high-riser rocker for sovereigns.

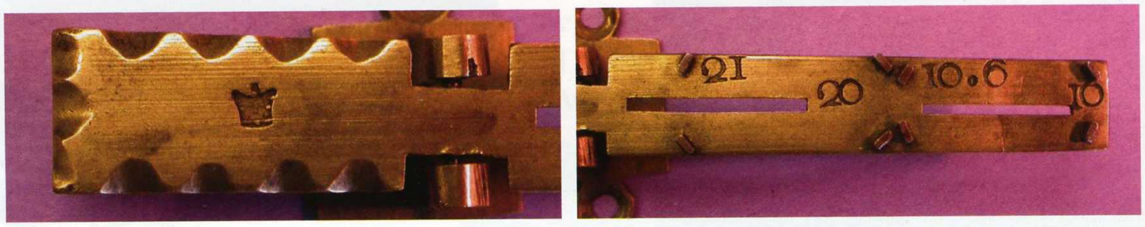




The fourth rocker, Variant 4 is a 4-coin rocker for the Guinea, Half-guinea, Sovereign and Half-sovereign and has the D40 crown but does not have ‘I.VOCe’ or ‘VOCe’ on the more decorative poise. The platters are delineated with coin stops and stamped with ‘21’, ‘20’, ’10.6’ and ‘10’. The base and gauge slots are the same as Variant 1 and 2.

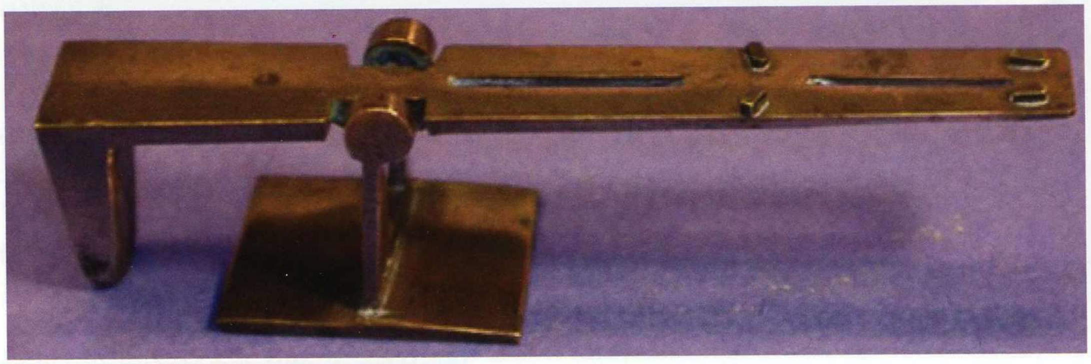


Variant 4: Elongated-poise high-riser rocker for guineas and sovereigns.

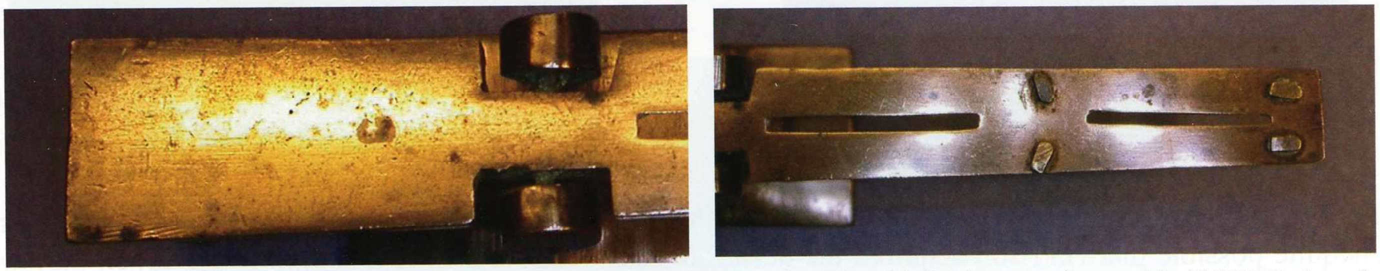


As will be seen, the decorative elements on the poise of this rocker are repeated in later multi-coin rockers made by Voce.

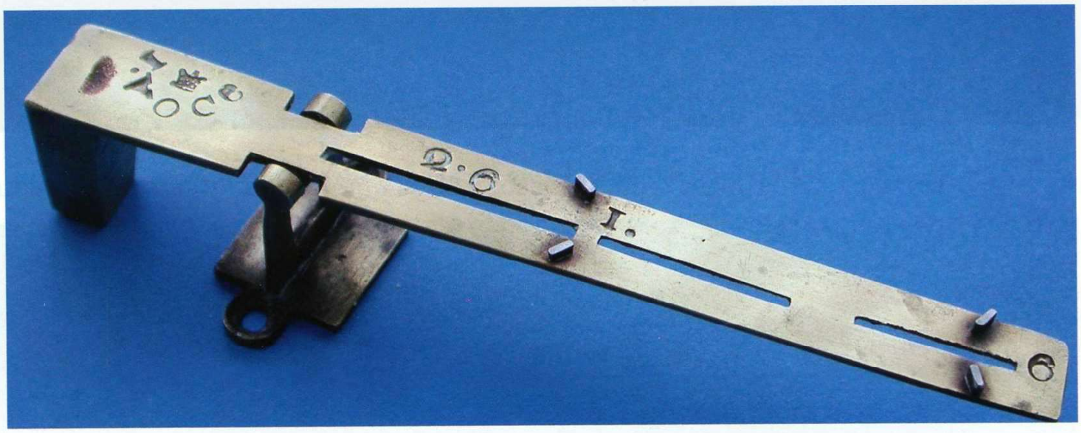
There is a fifth variant of an elongated-poise high-riser rocker for sovereigns, only without a crown and any labelling on the poise or platters. The base has been enlarged and the attachment holes are missing. The gauge slots are the standard for sovereigns.



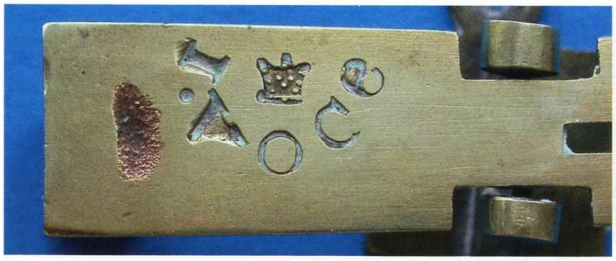
Variant 5: Elongated-poise high-riser rocker for sovereigns by Voce.

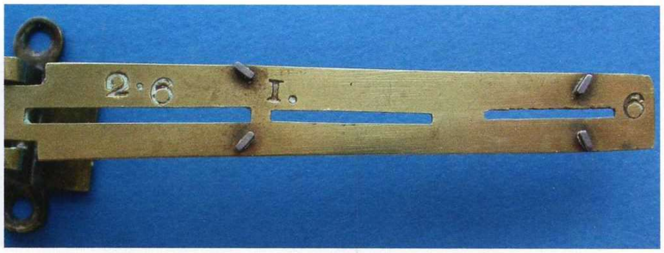


In late 2018, an unusual 3-coin and 3-gauge slot elongated-poise high-riser rocker with 'I.VOCe' and the D40 crown on a plain poise was recorded by the author. This Variant 6 rocker tests the three new silver coins minted under the Great Recoinage Law of 1816. The platters are delineated with coin stops and stamped with '2.6' for a silver half-crown, '1.' for a silver Shilling and '6' for a silver sixpence.

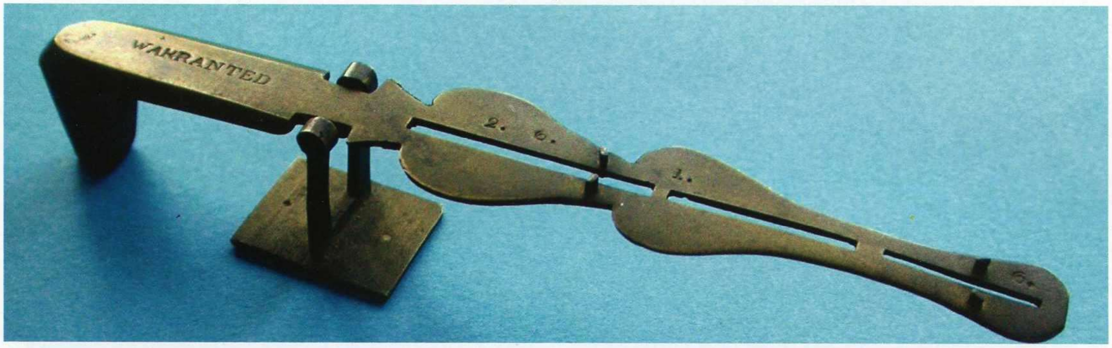


Variant 6: Elongated-poise high-riser rocker for Silver coins by Voce.

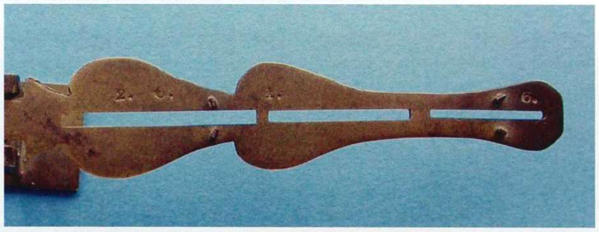




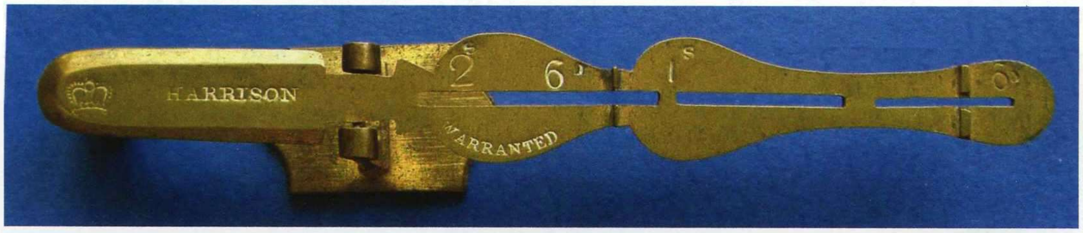
In 2019, a second 3-coin and 3-gauge slot silver coin rocker was recorded by the author. This one Variant 7 has ‘WARRANTED’ stamped on the beam near the poise and ‘I.VOCE’ stamped on the under side of the beam’. The platters are delineated by the shaped beam and coin stops and stamped with ‘2.6’ for a silver half-crown, ‘1.’ for a silver Shilling and ‘6.’ for a silver sixpence.



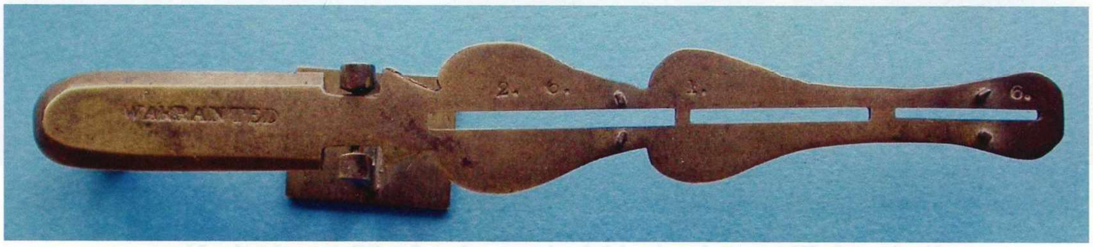
Variant 7: Elongated-poise high-riser rocker with shaped beam for Silver coins by Voce.



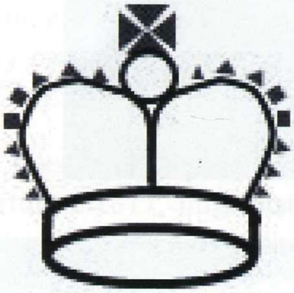
This 3-coin rocker for silver is very similar to one sold by Samuel Harrison with and without his name stamp. It is quite possible that Harrison acquired the design from T. Voce or Cottrell, Joseph & Co. when they were going out of the sovereign rocker business.



A Harrison and Voce 3-coin rocker for Silver coins



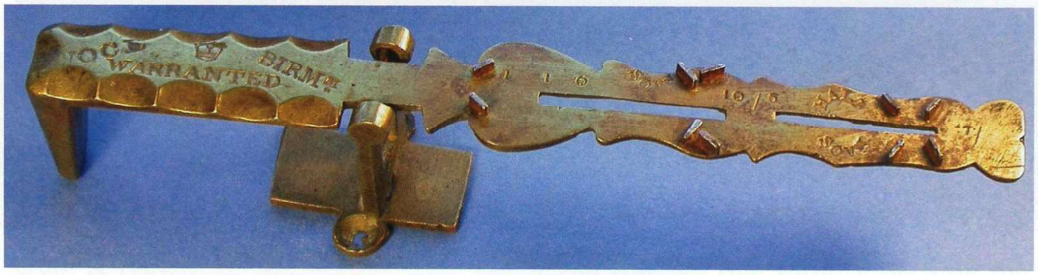
An eighth multi-coin rocker, Variant 8 for testing the Guinea, Half-guinea, Third-guinea, Sovereign and Half-sovereign, now has the D41 maker mark and is stamped with 'VOCE', 'WARRANTED' and 'BIRM$^{\underline{m}}$' on another decorative poise reminiscent of Variant 4.



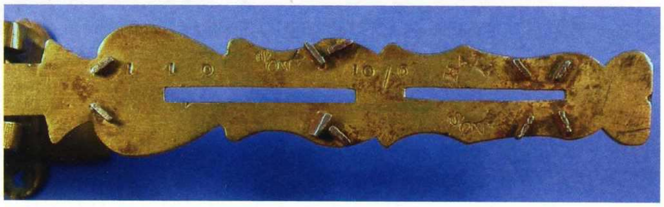
D41: VOCE

The platter areas are delineated with coin stops and now stamped with '1 1 0' (1 pound, 1 shilling, 0 pence), 'SOVN', '10/6', 'HALF SOVN' and '7/'. The base is slightly larger but still has the attachment holes. The gauge slots are the same as Variants 1 to 4.

The author believes this rocker and the next to be from Thomas Voce in the 1820 to 1823 time period, before his partnership with Joseph Cottrell, to be discussed later.

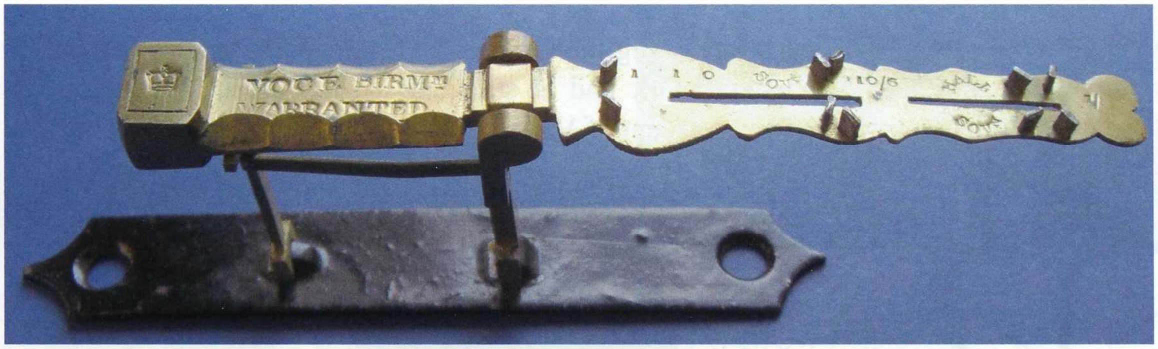


Variant 8: 'VOCE BIRM$^{\underline{m}}$' elongated-poise high-riser rocker for guineas and sovereigns.

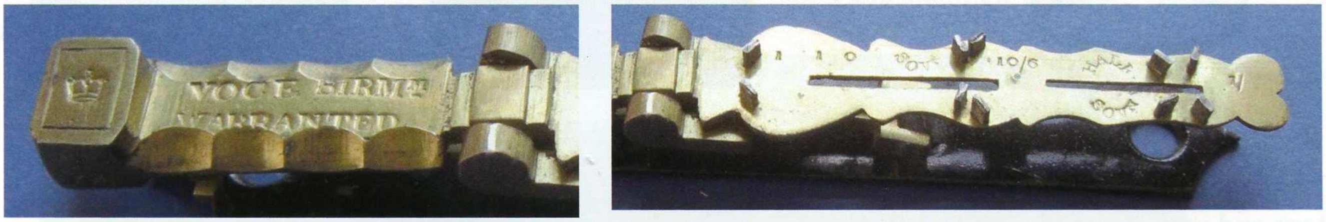


The next Variant 9 is a multi-coin folding rocker for testing the Guinea, Half-guinea, Third-guinea, Sovereign and Half-sovereign, again with the D41 maker mark and is stamped with 'VOCE', 'WARRANTED' and 'BIRM$^{\underline{m}}$' on another decorative poise.

The beam is similar to Variant 6 but the elongated poise has been modified to allow the beam to fold. Note the pivot column and the connected poise rest column are hinged to fold down similar to the folding scales in the mahogany boxes of the time.

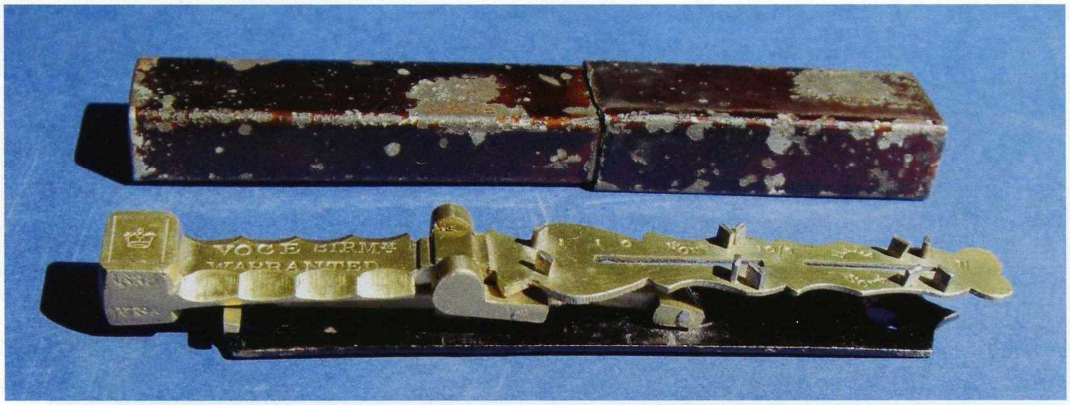


Variant 9: ‘VOCE BIRM$^{\underline{m}}$’ folding rocker for guineas and sovereigns.



The platter areas are delineated with coin stops and stamped as in Variant 7 with ‘1 1 0’ (1 pound, 1 shilling, 0 pence), ‘SOVN’, ‘10/6’, ‘HALF SOVN’ and ‘7/’.

This folding rocker came with a tin box.



Variant 9: Folding ‘VOCE BIRM$^{\underline{m}}$’ rocker with tin box

These rockers are from the early days of multi-coin rocker introduction when this style of rocker for the guinea, the new sovereign and the new silver coins of 1816 were being made by a single known maker, Thomas Voce.

The series shows several platter labelling changes from early examples with the guinea in Shillings and Pence as ‘21’, ’10.6’ or ‘7’ and the new Sovereign as ‘20’ or ‘10’ Shillings to a more liberal use of the back-slash to indicate the Pence portion resulting in the rocker labelled with ‘21/’, ‘20/’, ‘10/6’, ‘10/’ and ‘7/’.

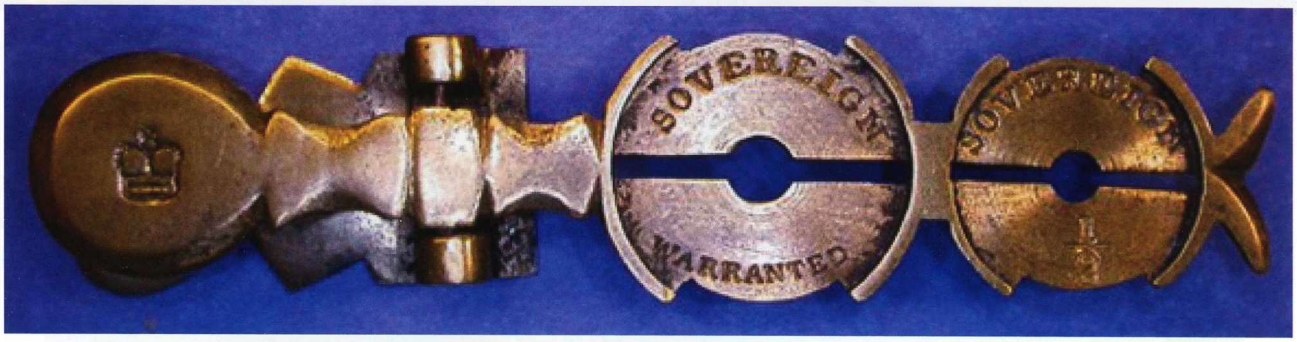
Interestingly the decorative 4-coin rocker, Variant 4, uses ’10.6’ for the half-guinea, similar to Variant 1, instead of the ‘10/6’ labelling found on the later ‘VOCE’ rockers.

The decorative poise and beam 5-coin rockers, Variant 8 and 9, have the very unusual label on the Guinea platter of '1 1 0', pounds, shillings and pence, and shows the introduction of the Sovereign designation with the abbreviated 'SOVN' and 'HALF SOVN' on the platter areas.

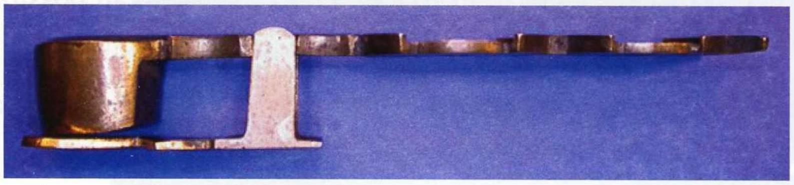
Ultimately the making of rockers to test both guineas and sovereigns was discontinued, market demand only called for Sovereign rockers. The platters were then typically labelled with "SOVEREIGN" and "SOVEREIGN ½".

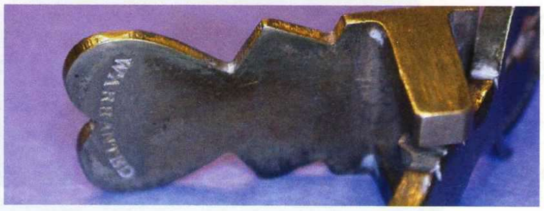
All these marking and decorative changes are consistent with what the earliest sovereign rocker maker, starting c.1817, might be expected to go through in transitioning from an early guinea and sovereign rocker that was new to the market place to the later Birmingham pocket style sovereign rocker series.

The D41 crown can also be found on an unnamed Birmingham pocket style sovereign rocker also made by VOCE, Variant 10:



Variant 10: Un-Bush'd, D41 crown unnamed pocket style rocker, with different platter labelling and 'WARRANTED' on the sovereign platter and base

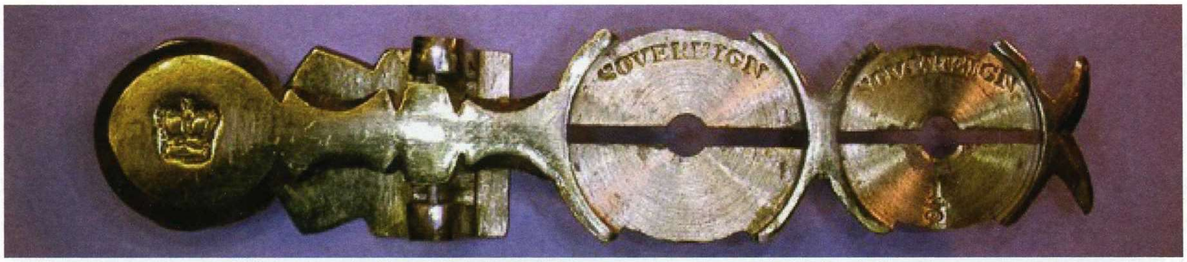




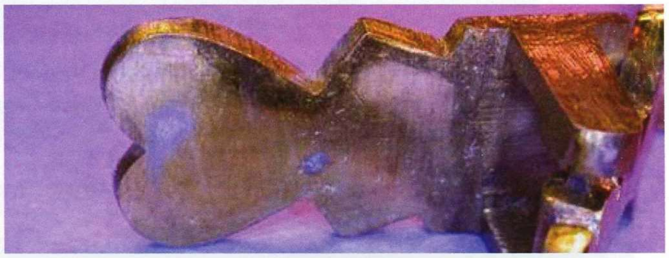
This rocker style is typical of the pocket style sovereign rockers that rapidly became the standard produced in Birmingham. This rocker is not steel Bushed and the platters with gauge slots are labeled 'SOVEREIGN / WARRANTED' and 'SOVEREIGN / ½'. The unusual valentine heart shape in the base is stamped with 'WARRANTED'.

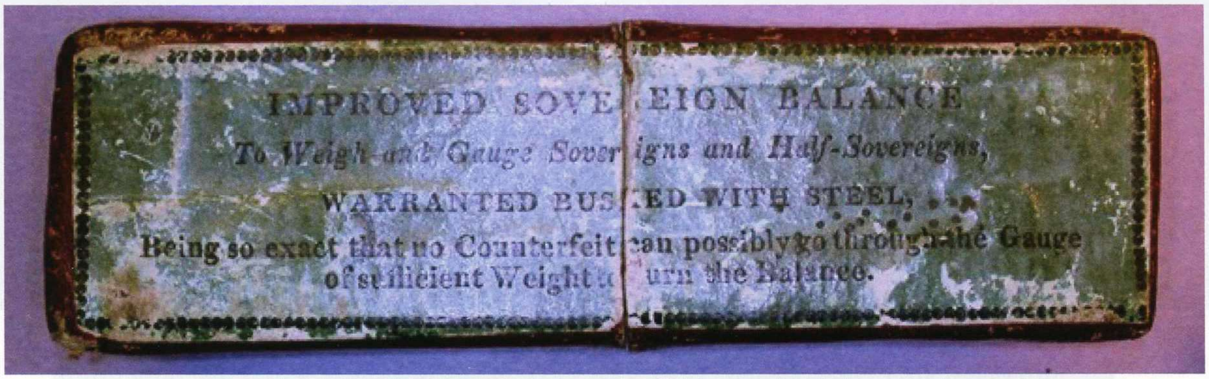
Version 1 below is the same rocker as Variant 10, but is steel Bushed, as the label on the box below implies. The steel bushing implies a later manufacture date. Version 1 is found with a different maker mark crown, D42, a different small font shallow curve 'SOVEREIGN' platter labelling and without the 'WARRANTED' stamp on the base and sovereign platter.

The Version 1 and the Variant 10 rockers have the same size, shape and style of beam and the same distinctive valentine heart shape cast-brass base, indicating that they were made by the same casting patterns. This implies some sort of link between the makers, usually either a partnership or the purchase of assets, like casting patterns, from one maker by another maker during a "Going out of Business Sale".



Version 1: Steel Bush'd, D42 crown rocker with blank base

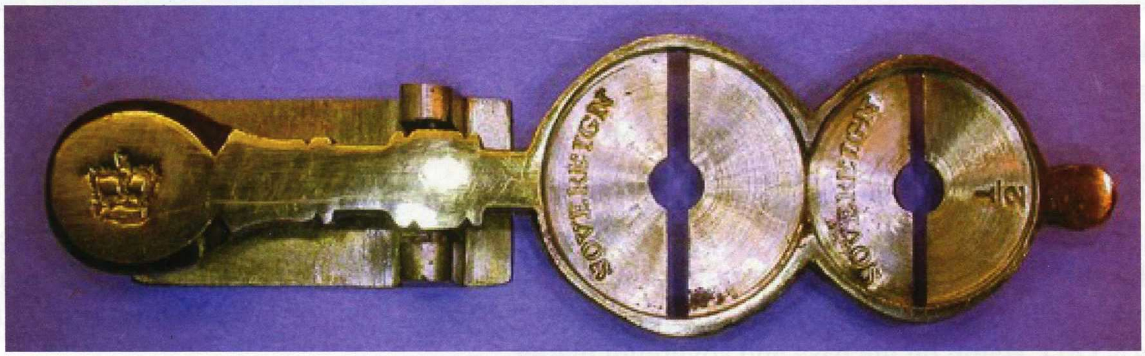




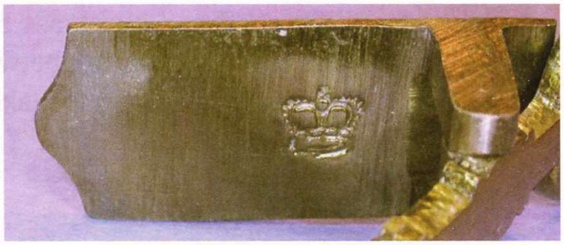
IMPROVED SOVEREIGN BALANCE
To Weigh and Gauge Sovereigns and Half-Sovereigns,
WARRANTED BUSHED WITH STEEL,
Being so exact that no Counterfeit can possibly go through the Gauge
of sufficient Weight to turn the Balance.

Box label reads: "**IMPROVED SOVEREIGN BALANCE** / *To Weigh and Gauge Sovereigns and Half-Sovereigns,* /WARRANTED BUSHED WITH STEEL*,* / Being so exact that no Counterfeit can possibly go through the Gauge / of sufficient Weight to turn the Balance."

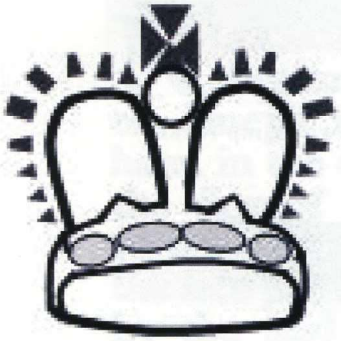
The Version 1 rocker does have the same crown and small font shallow curve 'SOVEREIGN' platter labelling as on the 90-degree slots rocker, which I have called Version 2 here:



Version 2: 90-degree slots, D42 crown rocker

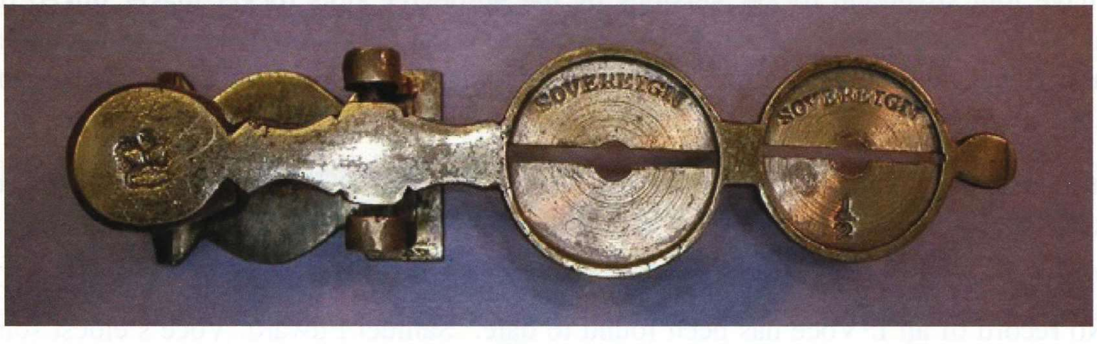


This rocker also has steel bushes and was sold in a cap-end box with the same "WARRANTED BUSHED WITH STEEL" claim on the label. This style of rocker with the 90-degree to normal gauge slots was perhaps an early experiment that did not catch on in the market as the full rim platters were prone to breaking at the gauge slots. The crown stamp is illustrated in D42 below:



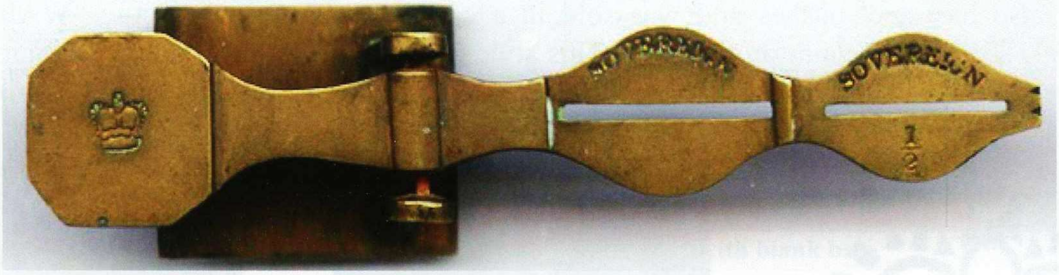
D42: J. Cottrell & Co.
- T. Voce and J. Cottrell partnership
- 90-degree slots

The D42 crown is also found on a 'Birmingham' style high-riser sovereign rocker, Version 3. This rocker has a bent-base poise rest and the same small font shallow curve 'SOVEREIGN' stamp on the full rim platters. The platters have a wider separation and the gauge slots are "normal".



Version 3: Bent-base Poise Rest High-riser, D42 crown stamp rocker

Then there is a fourth version with the D42 crown stamp this time on an octagonal poise, bent-base poise rest high-riser:



Version 4: Octagonal poise, Bent-base Poise Rest High-riser, D42 crown stamp rocker

The Version 4 high-riser rocker is somewhat similar in style to named E. Harland rockers with the octagonal poise. This rocker has a large base plate, rimless platters and a fishtail finial.

We now have four sovereign rocker versions by the 90-degree slots rocker maker linked by the D42 crown stamp. We also have a link to T. Voce who used the D41 crown stamp on his valentine heart shaped base pocket rocker. An identical cast pocket rocker can be found in a later steel Bush'd version with the D42 crown stamp.

If we start looking for the name Voce in the period from 1810 to 1830 as an early maker of rockers, we find an excellent candidate, Thomas Voce, brass founder, 26 Great Charles St, Birmingham.

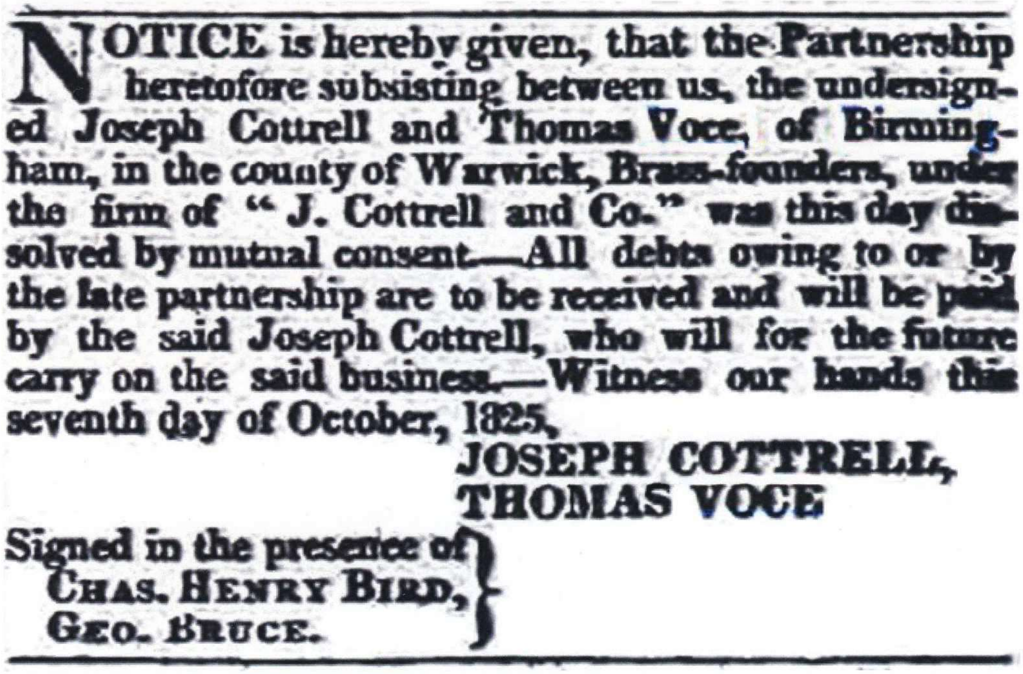
The 'I.' was possibly for a given first name as in John Thomas Voce or for a member of Thomas Voce's family. No record of an I. Voce has been found to date. Samuel Edward, Voce's eldest son died suddenly at age 27 in 1829, recorded in the *Birmingham Gazette,* August 31, 1829.

The following is a summary of the research and time-line information from Birmingham Directories:

T. Voce

1815	Thomas Voce, Great Charles St, Birmingham, *Wrightson's, New Triennial Directory of Birmingham, 1815*, p.131.
1818	Thomas Voce, Great Charles St, Birmingham, *Wrightson's, New Triennial Directory of Birmingham, 1818*, p.134.
1823	Thomas Voce, brass founder, 26 Great Charles St, Birmingham, *Wrightson's, New Triennial Directory of Birmingham, 1823*, p145, p164 under Brass founders.

Records of Thomas Voce, brass founder in Directories disappear after 1823 when apparently T. Voce formed a partnership with his neighbour, J. Cottrell, brass founder of 25 Great Charles St, Birmingham under the partnership name of "J. Cottrell and Co." which lasted until October 7, 1825 when it was dissolved. See the notice in the *Birmingham Gazette, October 10, 1825* below.



NOTICE is hereby given, that the Partnership heretofore subsisting between us, the undersigned Joseph Cottrell and Thomas Voce, of Birmingham, in the county of Warwick, Brass-founders, under the firm of "J. Cottrell and Co." was this day dissolved by mutual consent.—All debts owing to or by the late partnership are to be received and will be paid by the said Joseph Cottrell, who will for the future carry on the said business.—Witness our hands this seventh day of October, 1825,

JOSEPH COTTRELL,
THOMAS VOCE

Signed in the presence of
CHAS. HENRY BIRD,
GEO. BRUCE.

Notice of Partnership Dissolution, Birmingham Gazette, October 10, 1825

It is most likely that Voce continued to make sovereign rockers during the period from 1823 to 1825, but with a new maker mark crown, D42, representing the partnership with Joseph Cottrell.

Notices of the dissolution of partnerships were common in the newspapers of the time as it was necessary to identify to the public who would be responsible for any debts owing to or by the partnership. In this case J. Cottrell continued the business. The formation of new partnerships was not generally announced in newspapers. Advertisements by the new partnership or business listings in the next city Directory are the main sources we have today.

All of this means that the 90-degree slot rockers were probably made by Thomas Voce in partnership with Joseph Cottrell under the firm of "J. Cottrell and Co.".

The following is a summary of the research and time-line information from Birmingham Directories for Joseph Cottrell's companies:

Cottrell, J. & J.

1815 Cottrell, J.& J., Great Charles St, Birmingham, *Wrightson's, New Triennial Directory of Birmingham, 1815*, p.31, p.148 under Brass Founders.

1818 Cottrell, J.& J., Great Charles St, Birmingham, , *Wrightson's, New Triennial Directory of Birmingham, 1818*, p.33, p.152 under Brass Founders.

Cottrell, Joseph & Co.

(Partnership with T. Voce under the name of J. Cottrell & Co.)

1823 Cottrell, J, Brass founder, 25 Great Charles St, Birmingham, *Wrightson's, New Triennial Directory of Birmingham, 1823,* p.34, p163 under Brass founders.

1825 Partnership between Joseph Cottrell and Thomas Voce under the firm of 'J. Cottrell & Co.' was dissolved 7 October 1825 by mutual consent. Reference: *'Birmingham Gazette, 10 October 1825'.*

Cottrell, Joseph

1825-6 Cottrell, J, Brass founder, 25 Great Charles St, Birmingham, *Pigot and Co.'s, National Commercial Directory of Birmingham, 1825-6*, p.184 under Brass founders.

1828-9 Cottrell, Joseph, Working goldsmith and jeweller, 47 Great Hampton St, Birmingham, *Pigot and Co.'s, National Commercial Directory for 1828-9 [Part 2: Notts - Yorks & N Wales]and Directory of Birmingham, 1828-29*, p.770, p.794 under Working Goldsmiths and Jewellers.

1829-30 Cottrell, Joseph, Working goldsmith and jeweller, 46 Great Hampton St, Birmingham, *Pigot and Co.'s, National Commercial Directory for 1828-9 [Part 2: Notts - Yorks & N Wales]and Directory of Birmingham, 1828-29*, p.24, p.134 under Goldsmiths and working Jewellers.

1833 Bankruptcy of Cottrell's working goldsmith and jeweller business. Reference: '*Birmingham Gazette, March 18, 1833'.*

Cottrell, Joseph, Brass founder, 6 Mott St., Birmingham, *Pigot and Co.'s, Directory of Warwickshire, 1833*, p.21, p.101 under Brass Founders.

1835 Cottrell, Joseph, Brass Founder, 16 Mott St. Birmingham, *Wrightson & Webb, Directory of Birmingham, 1835.*

Cottrell, Joseph, Brass Founder, 16 Mott St, Birmingham, *Pigot and Co.'s, National Commercial Directory for 1835,* p.509, p.535 under Brass Founders.

The death of Joseph Cottrell in his 79th year was announced in the *Birmingham Gazette, June 22, 1835.*

What can we make from all of this? A series of early elongated-poise high-riser multi-coin rockers with the 'I.VOCe' and 'VOCE' stamp and the D40 and D41 crowns on the poise were most likely made by Thomas Voce, brass founder of Birmingham.

There are a number of interesting decorative and labelling changes to be seen in this series that help show the transition of the sovereign rocker from its introduction c.1817 supporting the testing of the guinea and the new sovereign to about 1828 when the Birmingham pocket style sovereign rocker was in peak production. These changes were driven by the market with its demand for counterfeit gold coin detectors and by the competition from a growing number of manufacturers and their offerings.

Thomas Voce partnered with Joseph Cottrell in "J. Cottrell & Co.", brass founders from 1823 until the partnership was dissolved on October 7, 1825. J. Cottrell & Co. used the D43 maker mark to make several styles of sovereign rockers, including the 90-degree slots version. It is likely that Cottrell continued to use the D43 maker mark after the departure of T. Voce in 1825, possibly up to 1835.

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